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How the fantastic world of TEK was created

Showing off
Full in-depth report on the recent RISC OS South West Show

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Sort out your rodent problems with this Gadgets special

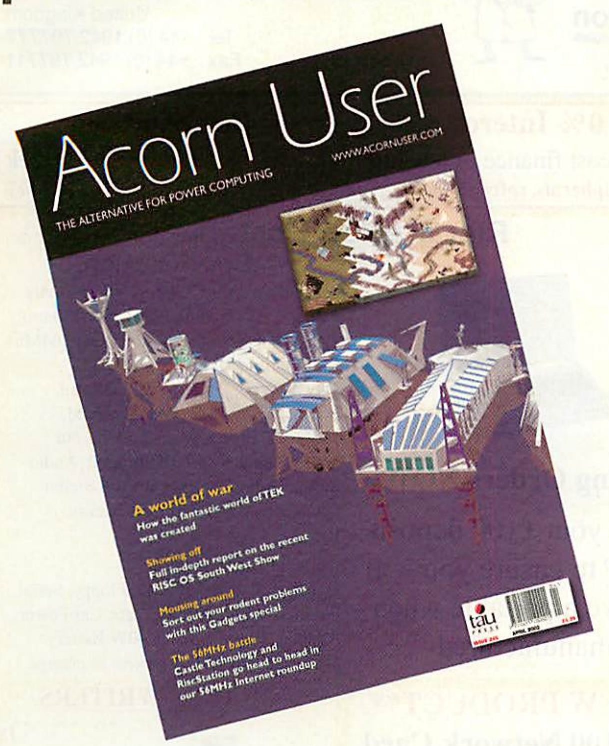
The 56MHz battle
Castle Technology and RiscStation go head to head in our 56MHz Internet roundup





ISSUE 245 APRIL 2002 £4.20

April 2002 Issue 245



Editor's comment

Lately, I've been thanking my lucky stars that I am a *RISC OS* user.

One the one hand, there's the system itself, in my case a *Kinetic RiscPC*. It is fast, stable (normally) and has a great user interface. When the computer does actually crash, it takes but ten seconds before I am back into the desktop. When I am deep in work, I tend not to notice the multitude of application icons building up on the iconbar; it's not unusual for me to suddenly realise I've got ten pieces of software running at the same time! Even with so much open at once, the machine is fast and stable.

On the other hand, there is the excellent software available for *RISC OS*. Without great software, what good is a great operating system? The combination of the two is what provides us with the system so many of us take for granted. Special thanks must surely go to Cerilica, Clares, David Pilling and all the other commercial developers who are still producing such excellent software for *RISC OS*, often at quite amazing prices. Then there's coders who devote their spare time to writing and porting software for us to enjoy, normally for free. A big thanks is surely due to these people, too, for the selfless dedication in bettering the platform.

What a great system. Here's to a long and successful future.

Michael Stubbs
Editor

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28a Middle Hillgate
Stockport, Cheshire SK1 3AY
enquiries@acornuser.com
www.acornuser.com
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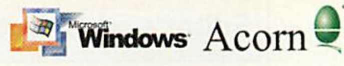
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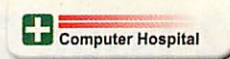
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Taking Orders NOW

Place your £100 deposit ASAP to ensure you will receive a portable when manufactured

Specification

Magnesium Alloy Casing, Weighs Only 1.3Kg !, As small as 242 x 190 x 30mm!, 8.4" TFT 800x600 Colour Screen, 64Mb RAM Onboard.,10Gb IDE HD, Touchscreen, GlidePoint Touchpad, PCMCIA Onboard, USB Onboard, 100baseT Ethernet Onboard,TV out VGA Output with DDC support, Audio Input, Audio Output, Onboard Stereo Speakers, 20W 3 cell LiFe battery, RISCOS4 and Utilities.

Optional Extras Include :
Docking Station with CD, Floppy, Serial, Parallel, VGA and PS2 Ports, Car Power Adapter, High Capacity 40W Battery
Specifications maybe subject to change.

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NET100 Network Card

100baseT network card (nic) with 16K buffering and additional user programmable 512K EEprom.

NET100R ISA card for RiscStation
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Only

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Full production cards will ship beginning of April.

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from £399 + Vat (£468.83) £15.32/month

HD fr'm £449 +Vat (£527.57) £17.24/mth

50 mip Arm7500 system with 16Mb memory, (HD version & Hard Drive) , built in ZIP drive support, Midi support, 3D sound, & sampler , 10baseT port as standard, RISCOS 4 as standard, High speed serial , High speed parallel, expandable to **256Mb** memory & hard drive / CD-ROM etc.

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From only £143.83 + VAT
(**£169.00** inc. VAT)

Basic Model	£143.83	£169.00
With Plus Pack	£169.36	£199.00
ClassRoom Pack (5)	£720.00	£846.00

8 MB Machine with 1/2 VGA Screen
Built in WP, SS, Diary, Sketch, Jotter, Spellcheck and Internet WWW and E-mail s/w. Psion © Compatable.

Acorn



300Mhz Kinetic RPC

Latest Acorn StrongARM series machine

70MB, 10GB HD, 52xCD

from £935 + VAT (£1099) £34.51/month

Internet RPC 138MB, 30GB HD, 52xCD
£1,199 + VAT (£41.42 /month)
(includes internet pack)

Removable media & CD's

	ex VAT	inc VAT
CDR 80 min Branded	**£0.68**	**£0.80**
CDR 80min 10 pk B'd	£5.95	£6.99
CDR 80min 50 pk B'd	£21.28	£25.00
CDR 80min 100 pk UB	£21.28	£25.00
CDR/W CD-ROM	£1.00	£1.17
CDR/W 10 pack	£8.00	£9.40
5.2Gb DVD RAM	£25.00	£29.37
LS120 Media	£4.00	£4.70
Zip 100 Media	**£7.65**	**£8.99**
Zip 100 Media 5 pk	**£34.03**	**£39.99**
Zip 250 Media	**£9.40**	**£11.05**
Zip 250 Media 5 pk	**£45.00**	**£52.87**
650MB PD Media	**£19.00**	£22.32
750Mb Nomai	**£38.00**	£44.65
2 GB Jaz Media	**£68.00**	£79.90
2.2 GB ORB Media	**£32.00**	£37.60

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Only £99.00 inc Vat (£84.26)

Resolution 1152x 864
Built in Flash c-flash exp.
LCD monitor X2 Zoom

Lowest cost Camera



Only £59.00 inc Vat (£50.21)

Resolution 640x480
Takes Smartmedia to 64Mb , 8Mb inc.

Camera Accessories

Smart Media

32MB	£13.00	£15.27
64MB	£24.00	£28.20
128MB	£52.00	£61.10

SMC reader inc S/W £79 + Vat

Compact Flash

32MB	£16.00	£18.80
64MB	£25.00	£29.37
128MB	£43.00	£50.52
256MB	£91.00	£106.92

CF reader inc S/W £79 + Vat

CD-ROMS



SCSI 8x
4way Autochanger
£75.00 + vat
(£88.13)

52x IDE	£30.00	£35.25	40x SCSI	£65.00	£76.37
56x IDE	£35.00	£41.12	32x SCSI	£59.00	£69.33

External CD ROMs

52x IDE (with cable)	**£85** + VAT
40x SCSI I(with cable)	**£115** + VAT
40x SCSI II(with cable)	**£120** + VAT
6x 40x CD Tower (+HD space)	£449 + VAT

Internet Packs from **£85 + VAT (£99.88)** available for all machines include Internet software, ISP setup and 56K modem

No More Balls !

Optical Wheel Mouse RSM330



RS7500 /A7000 etc.
only £19.95 inc
(£16.98 + VAT)
RPC Version
£38.50 inc.

Optical RF Wheel Mouse RSM400



RS7500 /A7000 etc.
only £39.95 inc
(£34 + VAT)
RPC Version
£58.95 inc.

Cable-Free





Mouse for RiscStation & A7000 /Mica	£19.95 inc.
Mouse for Risc PC / A5000 /A400 etc.	£38.95 inc.
Keyboard for RiscStation, RPC /A7000	£29.95 inc.

Trackball Mouse



R7500 / A7000
only £19.95
RPC £38.95 inc

	Ex. VAT	Inc. VAT
Acorn (RPC A5000 etc.)Mouse	**£16.98**	**£19.95**
Acorn (flex adapter) Mouse	**£25.49**	**£29.95**
A7000 (+) / Riscstation Mouse	£10.00	£11.75
Lower CASE Keyboard (PS2)	**£29.78**	**£34.99**
A400/A5000 Ergo Keyboard	£69.00	£81.08
A4 replacement keyboard	£49.00	£57.58
A4000 Keyguard (special needs)	£25.00	£29.37
A3000 /A300,400,500 Keyguard	£25.00	£29.37
A3 touchpad for Concept Keybrd	£25.00	£29.37

Refurbished PCs inc monitor

e.g. P2-266 inc. 15" monitor and Win95 only £249.00 inc VAT ring for other prices.





Bare Phoebe cases (no electronics sorry) Only £25.00 (£29.38 inc)

Desktop FAX MODEMS

56k V92 Hayes Accura	£85.00	£99.87
56k V90 (Rockwell)	**£42.00**	**£49.35**
56k V90 Internal for RS	**£49.00**	**£57.58**
ISDN modem (external)	£79.00	£92.83
!Dialler	£17.02	£20.00
Oregano	£49.00	£57.58
Webster XL	£21.28	£25.00
Messenger Pro	£25.53	£30.00
ArcFax Fax software	£26.38	£31.00

MONITORS



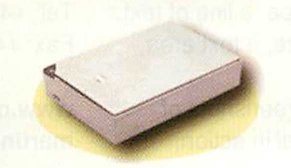
15" LCD
only £270 +vat
(£317.25)
(3 yr warranty)

	Ex VAT	Inc VAT
AKF52 Multisync 14" 1yr RTB	£127.00	£149.22
15" LCD (3yr on-site)	£270.00	£317.25
17" LCD (3yr on-site)	**£425.00**	**£499.37**
18" LCD (3yr on-site)	£POA	£0.00
15" SVGA 0.28 (3yr on-site)	£95.00	£111.62
15" SVGA 0.28 Multi-Media	£119.00	£139.83
17" SVGA 0.28 (3yr on-site)	£129.00	£151.58
19" SVGA 0.26 (3yr on-site)	£199.00	£233.83
21" SVGA 0.25 (3yr on-site)	£479.00	£562.83
15" Iiyama S500M1	**£109.00**	£128.08
17" Iiyama Vision Master 1401	**£144.00**	£169.20
17" Iiyama Pro 1411	**£199.00**	£233.83
19" Iiyama Pro 452 (S702JT)	**£275.00**	£323.12
19" Iiyama SM900MT1	**£199.00**	£233.83
21" Iiyama Vison Master 505	**£535.00**	£628.62
22" Iiyama Pro 511	**£558.00**	£655.65
SVGA 14" **refurb 90 days wty**	£42.00	£49.35
AKF12 PAL 14" refurb 90 days	*£42.00*	£49.35
AKF52/53 M/sync refurb 90 days	*£65.00*	£76.37
AKF65 M-Media 14" refurb 90days	*£49.00*	£57.58
Multisync A300/A3000 cable	£8.50	£9.99

All monitors inc 3 yrs wty unless specified

COLOUR SCANNERS

All scanners inc RISCOS Software



P'llel Mustek 600dpi	£99.00	£116.32
Mustek A4 1200dpi (SCSI interface)	£126.81	£149.00

ImageM & Twain also available separately

Consumables

Premier Quality Ink Refills
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DD Re-label Acorn fmt 10	£1.49	£1.75
DD Re-label Acorn fmt 100	£8.51	£10.00
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HD Re-label Ac or PC 100	£12.77	£15.00
HD bulk Acorn or PC 10's	£2.00	£2.35
HD bulk Acorn or PC 100	£17.02	£20.00
HD Branded 10 pack	£2.98	£3.50
20 cap Disk Box	£1.69	£2.00
40 cap Disk Box	£2.54	£2.98
100 cap Disk Box	£2.98	£3.50
Mouse cleaner	£4.99	£5.86
3.5" Floppy head cleaners	£2.50	£2.94
CD-ROM cleaner	£4.25	£4.99
CD-ROM Lens cleaner	£4.25	£4.99
15 cap CD-ROM box	£6.50	£7.64
24 cap CD-ROM wallet	£5.10	£5.99
20 cap CD-ROM wallet	£3.39	£3.98
20 cap CD-ROM tower	£4.25	£4.99
Mouse Mats From	£0.64	£0.75

PRINTERS



Mega-Deal
COLOUR
HP Laserjet 5
only £399.00 inc.
B/W Lasers from £85 inc VAT
units are refurbished with 90 days wty
other models available

HP laser differs from one shown

		Ex VAT	Inc VAT
Postscript colour Inkjet from	*A4*	*£199.00*	*£233.83*
Postscript colour Laser from	*A4*	*£1025.00*	*£1204.37*
Postscript B/W Laser	***A4***	***£245.00***	***£287.87***
Canon BJC 2100 colour (€)	A4	£50.21	£59.00
Canon BJC S400 colour €	A4	£67.23	£79.00
Canon BJC S450 colour €#	A4	£85.11	£100.00
Canon BJC S800 Photo #	A4	£285.00	£334.87
Epson Stylus 1520 colour	A3	£340.00	£399.50
HP 940 inc. RO driver	A4	£92.00	£108.10
HP 1220 inc. RO driver	A4	£288.51	£339.00
# Photo Drivers for		£58.72	£69.00
€ Needs Enhanced Drivers		£29.79	£35.00

Refurb dot matrix Printer from £10.00 inc VAT

3.5" IDE Hard Drives

	Ex VAT	Inc VAT
210Mb	*£20.00*	*£23.50*
500MB / 1GB	***£30.00***	***£35.25***
10.2GB *	£55.00	£64.62
20.1GB *	**£60.00**	**£70.50**
40.0GB *	**£70.00**	**£82.25**
60.0GB *	£83.00	£97.53
80.0GB *	£108.00	£126.90
100 GB *	£120.00	£141.00
120 GB *	£195.00	£229.12

SCSI HARD DRIVES

1.0 Gb	£35.00	£41.12
2.0 Gb	£69.00	£81.08
4.3Gb (5400 or 7200)	£80.00	£94.00
9.1Gb (7200 rpm)	£120.00	£141.00
18.6Gb (10K / 7200 rpm)	£152.00	£178.60
36.4Gb (10K / 7200 rpm)	£235.00	£276.12
73.4Gb (7200 rpm)	£575.00	£675.62

A3020   A30X0 & I/F

	A3020 Ex VAT	A3020 Inc VAT	A30X0 & I/F Ex VAT	A30X0 & I/F Inc VAT
170MB	£35.00	£41.12	£85.00	£99.87
340MB	£45.00	£52.87	£95.00	£111.62
500MB	£55.00	£64.62	£105.00	£123.37
810MB #	£70.00	£82.25	£100.00	£117.50
1.0Gb #	£99.00	£116.32	£129.00	£151.58
2.1GB #	£109.00	£128.08	£139.00	£163.33
4.3GB #	£129.00	£151.58	£159.00	£186.83

A30X0 version includes CD ROM i/f which can be used in A3020 or A4000. For external A3000 i/f add £20.00 +VAT   # includes partitioning software

Upgrade	A310	A400	A540	A3000	A3010	A5000
1-2MB	-------	£25	-------	£15	£15	---------
2-4MB	-------	£50	-------	---------	---------	£45
1-4MB	£35 *	£75	-------	£35	£45	---------
4-8MB	£55	£55	£45	£55	---------	£55 *#
RISCOS Carrier	£19 *	£19 *	-------	---------	---------	---------
RISCOS 3.1	£25	£25	£25	£25	---------	£25
MEMC1a	£20	£20	-------	---------	---------	---------
Arm3(33)	£45	£45	-------	£45 *	---------	---------
Arm3(25) & FPA10	£85	£85	-------	£85 *	---------	---------
FPA10	£45	£45	?		---------	£45
VIDC/IOC	£20	£20	£20	£20	---------	£20

A3020/A4000 memory only £40.
All above prices exclude VAT

SEE **January** Issue for ;
Software Bargains.

SEE **September** *Issue for ;*
Cooling Fans
Inkjet Refills
Network Products

SEE **March** *Issue for ;*
CD MP3 player for only £79.00 inc
Please ring for Prices

UPS's



500 VA
£49.00 + VAT

Spike protection, RFI filter and modem protector, Power boost function to correct low mains voltage
More models available.

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	Ex VAT	Inc VAT
8Mb SIMM EDO/FPM	£6.49	£7.63
16Mb SIMMEDO/FPM	£16.00	£18.80
32Mb SIMMEDO/FPM	£21.00	£24.68
64Mb SIMMEDO/FPM	**£39.00**	**£45.83**
64Mb SIMM RS 50ns	**£49.00**	**£57.58**
128Mb SIMM from	£85.00	£99.87
1Mb VRAM	£20.00	£23.50
2Mb VRAM	£69.00	£81.08
64MB 133M SDRam	£12.50	£14.69
128MB 133M SDRam	£25.30	£29.73
256MB 133M SDRam	£49.50	£58.16

Removable Drives

Zip 100 IDE inc media	**£49.00**	£57.58
Zip 250 IDE inc media	**£79.00**	£92.83
Zip 250 parallel ext.	£115.00	£135.12
JAZ 2GB SCSI ext.	£235.00	£276.12
JAZ 2GB Parallel ext.	£299.00	£351.32
Orb 2.2 GB IDE	£165.00	£193.87
Orb 2.2 GB Parrallel	£199.00	£233.83
10GB IDE Pullman	**£75.00**	£88.12
4GB Parallel Pullman	£135.00	£158.62
4GB P'll Datasafe	£115.00	£135.12
20GB IDE Pullman	**£80.00**	£94.00
10GB P,llel Pullman	£140.00	£164.50
10GB P'llel Datasafe	£120.00	£141.00
40GB IDE Pullman	**£90.00**	£105.75
20GB P'llel Pullman	£150.00	£176.25
20GB P'llel Datasafe	£130.00	£152.75

"Accent" Midi upgrades



Midi Break-out cable with driver sw	£15 + VAT
Yamaha DB51 XG Wavetable Card, Midi cable & drivers	£99 + VAT
Yamaha DB51 XG Wavetable Card, Midi cable, drivers & Evolution MK149 keyboard	£169 + VAT

Podule "MidiMax Card	£79.00	£92.83
MiniPodule Midi card (A3x00)	£69.00	£81.08
Refurbished Midi card A3x00	£20.00	£23.50

(All Prices below include VAT)   **THE BARGAIN BASEMENT**   (for Software see Jan issue)

Monitors	Ex VAT	Inc VAT
AKF12 PAL 14" refurb 90 days	*£42.00*	£49.35
AKF52/53 M/sync refurb 90 days	*£65.00*	£76.37
AKF65 M-Media 14" refurb 90days	*£49.00*	£57.58
SVGA 14" **refurb 90 days wty**	£45.00	£52.87
SVGA 15" **refurb 90 days wty**	£55.00	£64.62
SVGA 17" **refurb 90 days wty**	£81.00	£95.17
SVGA 20" e.g. Sony **refurb 90 days**	£125.00	£146.87
SVGA 21" e.g. Iiyama **r'b 90 day wty**	£149.00	£175.08

Drives (Hard & CD)	Ex VAT	Inc VAT
SCSI 4x6x autostacker (new)	£115.00	£135.13
SCSI 1MB Jaz int. with media	*£99.00*	£116.32

IDE 1MB Syquest int. & media	*£99.00*	£116.32
IDE 230 Syquest int. & media	*£99.00*	£116.32
SCSI 44M Syquest int. & media	*£99.00*	£116.32

Hardware Bargains		exc VAT	inc VAT
A3000 2Mb HD Systems	#	£85.00	£99.87
A3020 2Mb HD Systems	#	£85.00	£99.87
A4000 2Mb bases from	#	£100.00	£117.50
A5000 4Mb bases from	#	£170.00	£199.75
A310 /400 Floppy drives	#	£12.00	£14.10
A3000 / A400/1 Floppy drive	#	£12.00	£14.10
A30X0 keyboards	#	£20.00	£23.50
A3000 PSU's	#	£20.00	£23.50
A30X0 analogue / user card	#	£15.00	£17.62

Hardware Bargains		exc VAT	inc VAT
A30X0 IDE / user port cards		£40.00	£47.00
A30X0 Castle IDE cards		**£35.00**	**£41.12**
A3000 Dual Podule expan.	#	£30.00	£35.25
A4000 Motherboards (new)		£39.00	£45.83
Scanlight 256 hand scanners	#	£30.00	£35.25
RiscPC 486sx33 PC cards	#	£25.00	£29.37
RiscPC 486DX66 PC card	#	£50.00	£58.75
RiscPC 486DX100 PC card	#	£70.00	£82.25
P'll Joystick Controller.		£20.00	£23.50
BBC Printer cables		£4.00	£4.70
BBC master PSU		£10.00	£11.75

all 2nd user items 90 days Wty

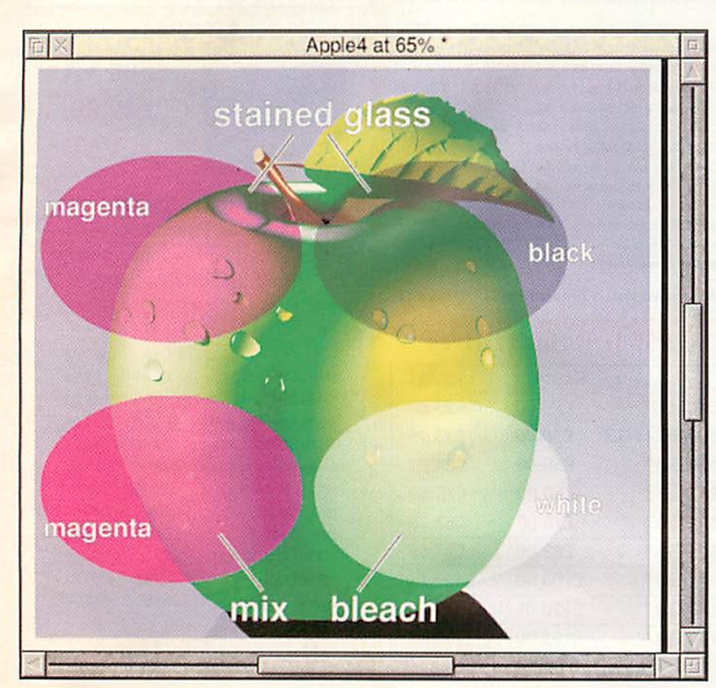
HOW TO ORDER

BY MAIL or PHONE: Cheques or P.O.s should be made payable to 'CTA DIRECT'.
CREDIT CARD / SWITCH please give name, address, tel. no, card no, expiry date, issue no.
BY EMAIL: **sales@ctadirect.co.uk**
OFFICIAL ORDERS by MAIL or FAX please
Carriage charges inc. ins. & packaging charged at cost
Small items (under 2Kg).....no more than £6 + vat
One box of items totalling upto 25kg...£6.50 + vat
Computer systems................................£13 + vat
All prices are correct going to press. E&OE
All goods are fully guaranteed but not supplied on approval.

Transparency comes to ArtWorks

MW Software are to release a transparency module for *ArtWorks*.

Following MW Software gaining access to the source to the *ArtWorks* kernel, development can proceed on fixing some long-standing bugs and also adding major functionality. The first major development to emerge from this access is the *Crystal* module.



The *Crystal* module, due out any day now, offers *ArtWorks* users full transparency support.

Crystal offers various types of transparency (Mix, Stained glass, Bleach) and allows you to apply a transparency type and percentage to any *ArtWorks* object, no matter whether it is a shape, a line of text, a sprite, a text area, etc.

Screenshots of *Crystal* in action, along with pricing and ordering details can be found on the MW Software Web site at **www.mw-software.com**

Crystal will require *RISC OS 3.5+*, *ArtWorks 1.7*, and quite a bit of memory (at least 16MB RAM recommended). A *StrongARM* is highly recommended.

Further information on *Crystal* and MW Software's other *ArtWorks* developments can be obtained by contacting MW Software at the following address or information is available on the MW Software Web site.

MW Software
Martin Würthner
Mannheimer Str. 18
67655 Kaiserslautern
Germany

Tel: +49 (0)631 3608205
Fax: +49 (0)631 3608203

www.mw-software.com
martin@mw-software.com

A healthy serving of e-mail

R-Comp have announced the server version of their popular e-mail client, *Messenger Pro*.

The new server edition will allow *RISC OS* users to share e-mail across a network to a broad range of computer platforms.

Designed for a small or medium office, or home network, the server edition allows email to be processed on a single, central *RISC OS* machine. Other *RISC OS*, or non-*RISC OS* machines connected on the same network may then download their e-mail from that central server.

For example, a child could be sitting playing games on a *Windows* PC, and be viewing mail without changing machines, whilst their parents were on the *RiscPC*.

The server appears just like standard *Messenger Pro 2* in use, making the move from existing versions simple and straightforward. Additionally, messages can be sent easily between different users on the server (without the need to go online) for effective internal messaging. If you travel a lot, and carry a laptop, you can download mail from your home machine onto it from *Messenger Pro* server, allowing you to view your mail on the road.

Running any kind of server requires a reasonable system specification, although technically any machine capable of running Messenger Pro and fitted with a network card should be able to do the job. A fast hard disc is recommended! You will need a network to run *Messenger Pro Server Edition*.

Messenger Pro Server Edition provides an IMAP 4 rev 1 mail server, NNTP news server, and SMTP mail sending facilities. This allows it to operate with a broad range of 3rd party e-mail clients on different operating systems. Clearly *Messenger Pro Online* is recommended under *RISC OS*, and the *Server Edition* has been tested with various *Outlook* versions under *Windows*, as well as a number of *Linux* and Web-based e-mail clients.

Server Edition comes with a home-licence (4 client machines) which is also suitable for most small businesses. *Messenger Pro Online* is included in the box for use on *RISC OS* machines, so that there are no "hidden extra" costs.

The RRP of *Server Edition* is £100 inc VAT and delivery.

Existing users of *Messenger Pro 2* can upgrade as follows:

From *Messenger Pro 2.50* standard version - £70 inclusive

From *Messenger Pro Online 2.50* - £60 inclusive

If you require a licence for a larger network, simply add the normal *Messenger Pro* site licence cost (£100), although current *RISC OS* machines are perhaps not the best choice for large networks due to limitations with hard disc and network speeds.

RComp
22 Robert Moffat
High Legh
Knutsford
Cheshire
WA16 6PS

Tel: (+44) 01925 755043
Fax: (+44) 01925 757377

www.rcomp.co.uk
rcomp@rcomp.co.uk

Image Software and Liquid Silicon enhance POSum EPOS system

Image Software and Liquid Silicon, developers of the Electronic Point of Sale (EPOS) *POSum* terminal based upon *RISC OS*, are busy at work enhancing the product and broadening its markets.

Recent additions to the *POSum* software has been a newsround management module, which gives *POSum* a much needed feature for the UK market as Darren Windsor of Image Software explains; "Many of our small convenience stores include (or have inherited) newsrounds. Selling a basic EPOS package to these people when others are offering integrated EPOS and newsround management packages would be an almost impossible task".



Other work to include membership and subscription-based payment models should allow *POSum* to be used in places such as fitness clubs, health clubs and gyms.

Various International translations are underway, including French and Dutch, to allow *POSum* to be sold in those markets, along with new modules such as a Pub and Club module to allow *POSum* to be used in bars, restaurants and clubs – a very lucrative market.

Image have also been expanding their reseller network, with four UK-based resellers, the latest one being setup on the Isle of Wight.

They are always on the lookout for new resellers to provide a local sales contact for new customers so contact Alan Gibson of Liquid Silicon on 01592 592265 if you are interested.

Alan Gibson
International Distribution Manager
Liquid Silicon
2 Forth Avenue
Kirkcaldy
Fife
KY2 5PN

Tel: +44 (0)1592 592265
Fax: +44 (0)1592 596102

www.epos.org.uk
sales@liquid-silicon.com

Image Software
48 Hinchliffe Road
Poole
Dorset
BH15 4ED

Tel: +44 (0)1202 269720
Fax: +44 (0)1202 685072

www.imagesoft.co.uk
customer.services@imagesoft.co.uk

Virtual Acorn faces new legal challenge

John Kortink, the author of the popular image processing software *Creator* and *Translator* has launched a public attack on Virtual Acorn claiming that several of his packages have been included without his permission and thus breaking his licence agreement.

The dispute involves copies of *Translator*, *Creator* and *Earthmap* being included in the hard disc image which *VirtualA5000*, the *RISC OS* emulator for *Windows*, installs by default.

In a recent newsgroup posting, John states "Virtual Acorn are supplying my *software illegally*...My copyright rules specifically state that my software may not be included in products without my approval.

There are good reasons for this. It is to prevent my hard labour being abused only to help entice people buying said products. As such, regardless of the proposed 'value' of the mere side-effect of the software being distributed just a little more (which is nil, and this is 15 years of experience talking), it has a very clear commercial value, and, consequently, proper negotiations are in order"

John continues "Virtual Acorn have only offered to remove my software from their product, but will not recall and will continue to sell existing copies of the CD-ROM that contain my software. They have declined to solve this matter in any proper way, as I have kindly proposed"

Despite Virtual Acorn issuing a public apology to John, it looks like this matter is still unresolved, and has started one of the fiecest newsgroup debates in recent times.

The main crux of the issue seems to resolve around whether John's software forms part of "the product", or whether it is included as a "free extra". Either way, it does seem apparent that John was not contacted prior to his software been included, although author, Aaron Timbrell, has apologised for that error:

"We did make strenous attempts to contact all authors concerned. We plainly did miss people for which I am quite happy to apologise.

The disk build had to be done in a short time scale and was assembled with the help of a number of testers who suggested applications that they thought should be included"

Aaron continues "If anyone is unhappy about a product being included then please do tell me and I will of course remove it at once, as I have done for John."

Given the uncertainly surrounding Virtual Acorn's legal position on *RISC OS 3.11*, it remains to be seen whether Pace take Virtual Acorn up on that latest offer!

New XScale processor ranges announced

Intel®, the world's largest chip maker, have announced two new processor ranges based upon the *StrongARM* derivative, *XScale*.

The first, the Intel® *PXA250* and Intel® *PXA210* applications processors will enable the ability to deliver richer music, movies and games as well as many of the latest applications being developed for the mobile workplace. The new processors complement the Intel® *StrongARM SA-1110*, currently the leading platform for Pocket PC devices being used in devices such as *PalmPilot* and Comaq's *iPAQ*.

The Intel *PXA 250* processor, running at clock speeds up to *400 MHz*, delivers advanced integration, leadership multimedia performance and improved power savings required for many full-featured handheld communicators, telematics systems and PDAs. Running at speeds up to 200 MHz, the Intel *PXA210* applications processor delivers a highly integrated, low-power solution for cell phones and entry-level handheld and wireless devices.

Building on our beloved *StrongARM* technology, the Intel *XScale* microarchitecture core was engineered to improve the performance of a wide variety of wireless Internet devices as well as powering networking infrastructure equipment. Both technologies are fully ARM architecture compliant, enabling software compatibility for products based on Intel *StrongARM* and Intel *XScale* microarchitectures. This announcement marks the first general-purpose processor based on the Intel *XScale* microarchitecture for the wireless device market segment.

These new processors feature architectural enhancements including support for the new Turbo mode technology. Turbo mode enables the processor to scale the performance as high or as low as necessary in a single clock cycle, which helps conserve battery life while still providing the necessary boosts in performance. In addition, the new micro-power management features for these devices allow the new processors to potentially use less than half the power at the same performance levels of today's Intel *StrongARM SA-1110* applications processor.



To increase multimedia efficiency and performance, Intel have added Intel® *Media Processing Technology*. It is designed to work specifically with the device's audio, video and gaming applications to increase the number of frames per second in videos, improve sound quality and give advanced graphical effects.

Intel have signed up an impressive array of vendors who will be using *XScale* in their products : Acer, Casio, Compaq , DaimlerChrysler, Fujitsu, Fujitsu-Siemens, Hewlett-Packard, Hitachi, Intermec Technologies, InFocus, Johnson Controls, NEC, Symbol Technologies and Toshiba Corporation.

In their press release, Intel list the operating systems that will support the new processor. These include Microsoft *Windows CE.Net*, *Windows Pocket PC 2002*, *PalmOS*, *SymbianOS*, and embedded *Linux*.

In addition to the list above, more than 200 independent software vendors are introducing versions of their popular applications in support of the new processors. Adobe, Macromedia, PacketVideo, RealNetworks, Inc., and other companies have optimized their software to provide Intel-powered devices with rich audio, video and gaming capabilities.

Products using the new processors are expected to be available to consumers by mid-2002.

The other main Intel announcement came at this year's Intel Developer Forum in San Francisco where Intel unveiled a family of network processors and a processor for networked storage application based on the same Intel® *XScaleT* technology.

These new Intel *XScale* technology-based products include the industry's broadest line of network processors, which are up to 16 times faster than previous offerings.

Intel also unveiled an integrated I/O processor, boasting more than twice the speed of previous Intel I/O processors, aimed at reducing the cost and complexity of designing networked storage devices.

This is a lucrative market for Intel. Network processors are programmable chips that integrate the functions necessary to transport packets of data in a network. They form the foundation for a wide variety of communications equipment and appear in a multitude of devices from Network Interface Cards (NIC) to switches, hubs, routers and high bandwidth optical devices (e.g. Gigabit Ethernet)

Intel are pushing the lower power consumption features of the architecture along with high performance "so products will not overheat in densely packed equipment racks".

The new processor family includes the Intel® *IXP2800* network processor for network core applications, such as ultrahigh-speed switch/routers; the Intel® *IXP2400* network processor for multiservice switches and similar equipment at the network edge; and the Intel® *IXP425* network processor for equipment that brings digital subscriber line (DSL), cable Internet service and wireless networking to homes and offices.

The fully programmable *IXP2800* and *IXP2400* network processors operate at 10Gbps and 2.5Gbps, respectively, and utilise a technological advancement called *Hyper Task Chaining* that enables the processors to perform numerous operations simultaneously, thus ensuring full network performance and sufficient "headroom" to accommodate complex services.

The *IXP2800* network processor will be the first communications chip built on Intel's 0.13-micron technology, increasing performance and decreasing die size.

The *IXP425* network processor simplifies system design by supporting voice, video and data applications across a wide range of transport mediums, including common versions of DSL, Internet cable, HDLC, IEEE 802.11x wireless and Ethernet.

These additions to the *StrongARM*-based *XScale* range means Intel is putting heavy resources into developing the processor and increasing its market - which will mean *XScale* will be around for along time to come. Now all we need is that 32-bit *RISC OS*.

deveoper.intel.com/design/xscale

FREEPOST EH2725
Kirkcaldy, Fife, KY2 5BR
United Kingdom
Tel: 01592 592265 Fax: 01592 596102
email: sales@liquid-silicon.com
http://www.liquid-silicon.com

Manchester name change

Following close on the heels of the Wakefield group, the Manchester Acorn User Group (MAUG) are changing their name to the RISC OS North West User Group (RONWUG)

MAUG was founded in 1997, and were visited by Acorn twice within the first few months of existence.

As such, the Acorn was retained in the group title for some years as the most useful reference point for the existing Acorn community, even after the demise of Acorn itself.

However, the committee and its members felt is was time for the group to move on, particularly as the *RISC OS* market evolves and there are now four different companies selling new *RISC OS* 4 based products which do not bear the Acorn brand name.

The change in name of the group also reflects the fact that, whilst their meeting venue remains only 15 minutes' tram ride from the centre of Manchester (and a few hundred yards from Manchester's M60 orbital motorway), regular visitors and speakers come from a wide range of locations including Liverpool, Preston, Lancaster and West Yorkshire.

The clubs' contact details have also changed, although their meeting date and venue remains the third Wednesday of each and every month at the Trafford Metrovick Rugby and Cricket Club in Sale. Membership and admission are still free.

RONWUG will continue MAUG's role of supporting and promoting *RISC OS* hardware and software development, both locally and nationally.

So if you haven't found time to visit before, paying a visit is a great way to meet other *RISC OS* users and developers, and find out more about what's going on in the *RISC OS* world in a friendly and informal atmosphere.

Forthcoming RONWUG meetings:

17th April:	David Bradforth (APDL/ ProAction)
15th May:	Topic & speaker to be confirmed
19th June:	Topic & speaker to be confirmed

All meetings take place at Trafford Metrovick Rugby & Cricket Club which is just a few hundred yards from M60 J7, with plentiful free parking right outside, and easy ground floor access.

It is on the bus route from Manchester city centre, and is about fifteen to twenty minutes walk from Dane Road Metro station.

www.ronwug.org
info@ronwug.org

TEK 1608 released at last

Artex software have announced that the long awaited release of their realtime strategy game, *TEK 1608* will be April 15th 2002

TEK 1608 has been in development since October 1999 and boasts some impressive features:

- Hi-res raytracing graphics
- Network/Internet/Modem multiplay
- Fast graphic engine
- Stunning gameplay
- Scalable resolution
- Films and high quality music

The game features multiple camera windows, lots of units, buildings, and different levels, and will be available on CD.

Artex claim that *TEK 1608* will run on most modern *RISC OS* hardware including RiscStation *R7500*, *RiscPC* (including the *Kinetic*), the *Mico*, and the yet-to-appear *Omega*.

We suspect a *StrongARM* would be highly recommended for the *RiscPC* if you are not using a *Kinetic* processor card.

The game runs in screen resolutions from 640x480 up to 1024x768.

As an extra bonus to purchasers, the *TEK* package will also contain the full versions of the other Artex titles *Exodus - The Colonisation of Space*, the graphical adventure game *Ankh - The Tales of Mystery* and the puzzle platform games *BotKiller* and *BotKiller 2*.

TEK 1608 may be purchased direct from Artex, RComp, or your local dealership.

www.artexsoft.com

In brief

Pump up your laptop

A US company called Aladdin Power has developed a product called a *Step Charger* which it says is capable of producing enough electricity to quickly recharge a laptop computer. Roughly the



size of a paperback book, the device contains a pedal that if pumped by your foot for a few minutes, will reportedly release enough power to recharge the battery in your laptop. A device like this would be an ideal accompanyment to the new RiscStation sub-notebook.

www.aladdinpower.com

Money in your mobile

Vodafone plans to launch a service in the UK that will allow you to add online charges to your mobile phone bill. The system is designed to handle small charges - up to £5. Vodafone has signed up 50 Web sites that will use the system to pay for ring tones, phone icons, and video clips. Vodafone has competition from a number of companies like Paybox and of course from credit cards.

DARC April meeting

The April meeting o the Derbysire Area Risc Club will be their AGM and will be held on Monday April 8th. This will be followed by a session on the practical aspects of setting up a simple network between RISC OS and PCs.

As usual the meeting starts at 7.30pm at the Parish Hall, St.Alkmunds Church Duffield, (just off the A6 north of Derby) Derbyshire. Tea, coffee and biscuits are available during the evening and you are welcome to come to the pub after the meeting. There is ample free car parking. A map is available from their Web site. Visitors are always welcome

www.darc-comp.org.uk

BAUG April meeting

The Bottisham April meeting will be their AGM so why not go along and take part in what will undoubtedly be one of the biggest celebrations of the year! A splendid buffet will be provided.

come.to/baug

New EU tax proposal

A decision by the *European* Council for Economics and Finance to adopt in principle a proposal from the European Commission to impose VAT on non-European Union e-tailers is drawing accusations of protectionism, and endangering the growth of global e-commerce, according to research house Yankee Group.

Under the plan, non-EU e-tailers would be charged VAT at the rate applicable in the country where the customer resides but European Union members would be required to charge VAT at the rate charged in the country where their business was actually registered.

This would make it easier for Eropean Union members to conduct e-business in Europe because they would only need to calculate a single tax rate.

They could also benefit by registering their companies in those European Union countries that enjoy a lower tax rate than their native countries.

Some European companies are welcoming the legislation because it goes some way toward leveling the playing field and promoting fair competition within Europe.

The view from the Yankee Group is that if the proposal goes ahead, US e-tailers may re-evaluate their European activities in the face of rising costs.

It may also herald a political battle between Europe and the United States as many of the largest e-tailers in Europe are from the United States.

Other potential downsides to the proposal are that the tax would apply to digital downloads as well as physical goods, and could have a major impact on the growing B2C market of paid downloads for digital music and video.

A recent European Union report showed that European e-commerce activity is falling behind other regions.

IBM makes fastest-ever chip

IBM has created the world's fastest integrated circuit. The new chip, which is aimed at makers of fiber-optic switches and other networking devices, runs at more than 110 gigahertz, which means it turns on and off more than 100 billion times a second. The higher speeds will enable companies to build telecommunication switches that can handle far more fiber-optic communication lines. The new chip is based on silicon germanium (SiGe), a material that uses a layer of germanium to achieve high speed while taking advantage of the low cost and workability of silicon.

The increase in speed will have an immediate impact both on optical communications networks and on high-frequency wireless communication gear. But the new transistors are also likely to be incorporated into desktop computing devices, where they will support the emerging 10 gigabit Ethernet network standard. IBM pioneered SiGe technology and now has 80% or more of the SiGe market. The market for SiGe was about $320 million last year, and is predicted to grow to $2.7 billion by 2006.

Until recently, the semiconductor industry believed that it would have to migrate to new materials and new production methods in order to achieve greater switching speeds. But SiGe can be manufactured on standard complementary metal oxide semiconductor (CMOS) production lines. This gives SiGe a significant cost advantage over more exotic materials like indium phosphide and extends the useful life of silicon-based production technology.

Another benefit of SiGe is that it will permit a new generation of faster communications devices that require far less power and space than their predecessors.

Telecom carriers find that as much as 30% of their operating expense is buying power for their switches.

So the low power-draw of devices incorporating these chips should appeal to the carriers. IBM and the switch makers hope that this operating cost advantage will set off a round of capital purchases by the telcos, as they drive to reduce their operating expenses.

Intel is pushing their new *XScale*-based network processors for precisely the same reason.

In brief

MS pushes Windows for cars

Microsoft has announced that BMW's new *7-Series* sedan would use *Windows CE* software to run its in-dash control computer. Microsoft said that it has *Windows CE* in 13 vehicle lines worldwide, with nine more to be



announced by the end of the year.

The announcement is a milestone for Microsoft, which has struggled for a foothold in the car market. Sun already has agreements with General Motors and Ford to use its *Java* technology in their new cars.

We do wonder what legal repercussions might arise..."Sorry officer...I had no idea how fast I was going, My dashboard has crashed!"

Remote control mice?

Scientists in the US have pioneered a controversial process that involves implanting tiny microprocessors, about the size of the grain of sand, into the brains of mice. These small chips, when activated by an electromagnetic pulse, will stimulate the brain into moving certain muscles, depending on the location of the implant.

At present the research has proved sucessful in allowing scientists to "remote control" the limbs of rodents, but they believe similar techniques could be used on other animals, and eventually humans.

Human rights campaigners who are opposing the research claim that allowing scientists control of the human body by "remote control" could lead to the creation of human "drones" who have no control over their own actions and as such are "above the law"

Digital characters "talk" to the deaf

A pilot project by Consignia (aka The Post Office) will use digital "avatars" as signing translators. The avatars, which are computer animations designed to look and move like real people, could significantly expand the ways deaf and hard of hearing people communicate with the hearing world.

A computer program takes spoken English and converts it in real-time to text. The digital avatars then take this English text and sign its meaning on a display screen, in effect becoming a translator between spoken English and British sign language.

The deaf and hard of hearing account for 8.6 million of the 59 million people in the United Kingdom.

Neil Spellings
news@acornuser.com

RISC OS SELECT

Make the right choice for the future with

RISC OS Select

Keep up to date with every new version of RISC OS as it appears!

The **RISC OS Select** scheme is the new way of supplying RISC OS upgrades. It provides a ROM image which is soft-loaded over the internal RISC OS 4 ROM, along with a new Boot sequence and applications. Distribution of the updates, and technical support information, will be primarily via the Select Web site, with periodic releases on CD. Payment for the scheme is made by annual subscription. All you need is a machine with RISC OS 4 already in ROM on which to install the **RISC OS Select** versions of RISC OS 4.

What does the Select scheme provide?

By joining **Select** you will receive the following benefits:

1. Periodic updates via the **Select** private Web site.
2. Up to three CDs per year, containing the latest version of RISC OS plus optional beta-test copies of software components in development. Every CD will be bootable and contain a full, working disc image that allows the easy selection of different boot sequences.
3. The right to upgrade up to **ten** RISC OS computers at one site. **Select** is a personal scheme: you only need one subscription even if you own several machines. However, RISC OS 4 is needed for each one: **Select** cannot be used with RISC OS 3·7 or earlier.
4. **Affiliate Registered Developer** status: if you are a programmer, joining **Select** entitles you to become an Affiliate Developer for no extra charge, and have your products included in the Database section of **Foundation RISC User** magazine and on the Web site.

RISC OS 4 upgrades and Select scheme prices

Subscriptions to **Select** are available on an annual basis, and may be purchased in combination with a RISC OS 4 upgrade.

RISC OS 4 upgrade plus Select subscription: £179

RISC OS 4 upgrade only *(new low price!)*: **£109**

Select subscription only: £105
(for existing RISC OS 4 users)

Select subscription only: £99
(for Foundation members)

Select group subscription: £300
(for sites with more than ten machines)

All prices above include VAT.

Please see our Web site for further pricing details, overseas prices etc.

RISC OS fans! Join the

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FOUNDATION RISC User










Now entering volume 3!

Foundation RISC User is a truly innovative publication from RISCOS Ltd that supports the heart of the RISC OS market. The magazine articles combine useful information with software resources that can be launched with a simple click on a link. Every issue is packed with a wide range of substantial and authoritative features from respected writers, along with a comprehensive and fully integrated database of current RISC OS products, developers and user groups. Altogether, it's arguably the most innovative and high quality CD magazine on any platform.

Testimonials from readers of Foundation RISC User

- "The interface is very friendly and better than my perception of what a CD-based magazine would be like!"—*Andrew Weston*
- "The whole CD is a joy, and something our platform can be proud of."—*Geoff Steeper*
- "The Foundation CD has contradicted my opinion that I wouldn't be able to read a CD magazine happily. It's very nicely laid out."—*Fred Bambrough*
- "Congratulations on Foundation RISC User… it works smoothly, looks good and has masses of useful and interesting content."—*Gavin Wraith*
- "Keep up the excellent work! (And what I REALLY appreciate is someone who can write, spell, talk sense, and knows his its-es and it's-es!)"—*Jeremy Roberts*
- "It's a really excellent job."—*David Pilling*

Sample Foundation RISC User Online!

Visit our sampler edition, **Foundation RISC User Online**, at **http://foundation.riscos.com/fru.htm**



Beat the price rise! Join the Foundation or renew your membership by 31st May for just £35·25 (£30 ex. VAT)

From 31st May, prices will increase as follows: UK: **£33**+VAT (£38·78); EC: **£35**+VAT (£41·13); Non-EC countries in Europe: **£35** (no VAT); Postal Zone 1: **£37** (no VAT); Zone 2: **£39** (no VAT)

RISC OS Ltd
3 Clarendon Road
Cyncoed, Cardiff
Wales CF23 9JD

Tel. 02920 492324
Fax 02920 492326
www.riscos.com
sales@riscos.com

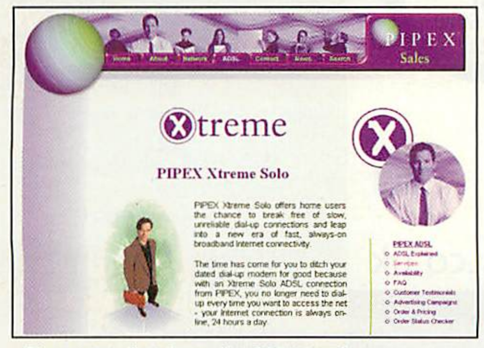
Confessions of an ADSL user

The announcement by Pipex Internet Ltd. in mid-February that they were dropping the price of their *Xtreme Solo* domestic "Wires-only" ADSL service to £29.32 inc VAT per month with no extra activation fee, persuaded me to log on to their Web site on the Thursday night after the announcement and fill in the online booking form.

I'd been avidly scanning the many forums of the ADSLGuide at **bbs.adslguide.org.uk** for information on Broadband ISPs, ADSL modems and routers, and what to expect from the "Wires-only" service. With my application to Pipex I ordered a Microfilter, which plugs into the BT master socket and separates the ADSL signal from the telephone voice circuit that shares the same wires to the exchange. It provides one socket for the phone and one for the ADSL modem. This arrived by post on the following Monday morning, together with an invoice to me and a letter for another customer.

I immediately phoned Pipex Sales, who were apologetic and decided to change my password in case my user details which I should have received had been sent to someone else. I then waited patiently for the next few days for the welcome letter and an "activation" date. The address of the phone line to be converted is in the centre of town, so I thought it very unlikely that the line test that BT perform from the exchange would fail. The next day, Tuesday, in anticipation of success, I ordered a Alcatel *SpeedTouch 510* ADSL modem/router with 4-port switch/hub from DSLSource of Coventry at **www.dslsource.co.uk**

I chose the *SpeedTouch 510* switch/router because I wanted to network a desktop PC (ahem) and a PC laptop and give them both Internet access, and get transparent Internet and file-sharing to an Acorn machine. At this location I normally use an Acorn A4 for writing this column, but networking this machine is not easily achievable.



Pipex was first in under £30/month



A deceptively small box for the money

Apart from the inherent intruder security that its Network Address Translation (NAT) gives, the *SpeedTouch 510* includes a built-in firewall that can be custom-configured using its Command Line Interface. However, this is a formidable task due to the rather unhelpful CLI manual which only lists the commands and their syntax, but not how nor why they should be issued. However, using the default settings and NAT means that the router itself hides from outside view all the computers connected to its switch, and will give a satisfyingly complete list of "Stealth!" reports from Steve Gibson's security-testing *Shields Up!* site at **www.grc.com**

The *SpeedTouch* was delivered just before the weekend, and breathlessly I unpacked it and plugged it into the microfilter's ADSL socket and switched on. LEDs flashed red and green, and the Line Sync light settled down to a steady green. "Great!" I thought. "I'm connected early." I wasn't. My Pipex username and login refused to elicit any response other than a "Retrying" from the modem. Pipex told me to try the BT test login, which worked perfectly and played a short streaming video as a confirmation that all the hardware was working.

Activation day came and went, so 5 days and 10 phone calls to Pipex Support later, they eventually persuaded BT that the problem was BT's and not Pipex's or mine, and a BT Engineer called today. He connected his laptop, verified that there was a BT problem, and phoned BT's ADSL central command. They admitted that the route settings between my address and Pipex had been missed out, so with a few keystrokes this was corrected, and I am connected.

Wow! To think I could have had this speed a week ago if BT had believed Pipex Support in the first place. I'm just off to check out some broadband Web sites. I may be some time.

In brief

Take Me Back!

It worries me that so much of our human knowledge resource is now stored only in digital form that requires current-technology readers to retrieve it. The Rosetta Stone, carved in 197 BC with Egyptian hieroglyphics and the Greek script translation is still readable by the human eye 2199 years later. Can we expect our descendants to be able to decipher our unearthed CD-ROMs and RAID disc arrays as easily in the year 4102? The Internet Archive obviously thinks so, for it has been accumulating



Web data donations for the last six years. The result is *The Wayback Machine*, a searchable Internet snapshot library of pages from the World Wide Web going back to 1996. You can re-visit the early days of the Web when surfing was fun and free. There's even a few pages but no pictures from **www.acorn.com**.

The Wayback Machine

www.archive.org

PeerBoard and Python

Although this sounds like something from *Dungeons and Dragons*, *PeerBoard* utilities allow you to share a clipboard between *RISC OS* computers and *Windows* 32 bit computers, which means the ability to cut-and-paste text between machines over a TCP/IP network. Oh, and it's written by Dietmar Schwertberger in *Python*. Before you ask, *Python* is an interpreted object-oriented programming language that has similarities to *Perl*, *Java* and *Visual Basic*. You can read more about the *Python* interpreter itself at **www.python.org**.

To run *PeerBoard*, your networked *RISC OS* and *Windows* 32 bit machines must also be running the *Python* interpreter, so this is quite a tekkie exercise probably not for the faint-hearted! The *RISC OS* port of *Python* and various libraries and additions, as well as *PeerBoard* can be downloaded from Dietmar's Web site, and a "long-filenames" filing system will be required.

PeerBoard and Python

www.schwertberger.dusnet.de/python.html

David Dade
comms@acornuser.com

Real-world RISC OS graphics

This month we are taking a break from our series of software reviews to feature some artwork created on *RISC OS* and some other bits and bobs. I would like to make other people's artwork a regular feature, so if you have any artwork you have created using *RISC OS*, please send it in to *Acorn User*.

Photodesk hints and tips

Chris Terran has been in touch to promote his new site dedicated to the use of *Photodesk*, which he runs with Lee Montgomerie.

The site offers a range of walk-through tutorials that detail how to achieve various effects using *Photodesk*. In addition, there is a list of links to other useful *Photodesk* Web sites.

The ethos behind the site is to explain how to achieve effects by way of examples.

The authors point out that the official *Photodesk* manual might be excellent for reference, but it does lack lots of examples to help you along.

Written by users for users, this site should prove very helpful to all but advanced users. You can visit the site at **www.nocanews.new.labour.org.uk/chris/index.html**.

A tight fit

Now to this month's reader artwork. Tim Hill sent in his design for the Tight Fit Theatre, which many of you may see as you pass through a London tube station sometime soon!

Tim sent the work to *Acorn User* as two RGB JPEGs which he says is exactly what has gone to their printers. To reproduce them in *Acorn User*, I converted them to CYMK and imported them into *Ovation Pro* as TIFFs. It might be a point of interest to get hold of one of the postcards and compare it against our reproduction here.

Your artwork

Please do send your artwork in to *Acorn User*. Any *RISC OS* format is fine, although it has to end up as a CMYK TIFF in the end so this is the preferred format. Send your artwork and details of how and why you created it and we'll feature as many as we can on a bi-monthly basis.

We are lucky to have some very powerful graphics programs on *RISC OS* – let's show everyone what they can do!



TWELFTH NIGHT

Cross dressing, mistaken identity and seduction interweave with the sounds of the only place in town - Club Illyria. The strains of the torch song burn through the night inviting us into this world of lovers and strangers. A heady mix of summer jazz and lost loves brought to you by The Wycombe Swan's resident theatre company.

The Gatehouse

UPSTAIRS AT THE GATEHOUSE

HIGHGATE VILLAGE, LONDON N6 (Junction of Hampstead Lane and North Road)
Nearest Tube: Highgate (10 minute walk up Southwood Lane)
Archway Tube (then buses: 143, 210, 271 up Highgate Hill)
214 bus from Camden / Kentish Town
Easy parking after 6.30 pm and all day Sunday

March 2002	Day	Performance	Tickets	Concessions*
5	Tue	8 pm	£10	£8
6	Wed	8 pm	£10	£8
7	Thur	8 pm	£10	£8
8	Fri	8 pm	£12	£10
9	Sat	8 pm	£12	£10
10	Sun	4 pm	£10	£5
12	Tue	8 pm	£10	£8
13	Wed	8 pm	£10	£8
14	Thur	8 pm	£10	£8
15	Fri	8 pm	£12	£10
16	Sat	8 pm	£12	£10

* CONCESSIONS: Students, Young People (under 16 yrs), Senior Citizens, Job Seekers, Registered Disabled, Equity and MU Members.

BOX OFFICE: 020 8340 3488

www.upstairsatthegatehouse.com

Tim Hill: "Nothing particularly complex. I believe in K.I.S.S. Done with Artworks but it could have been Draw! Photo taken on 1600 ASA film under stage lighting and scanned.

May be of interest as rather than just some random spatter for my own amusement, these are the front and back of real advertising copy of which 10,000 are being printed on A6 300 gsm board (postcards) and dished out at selected London tube stations over the next few weeks."

Michael Stubbs
graphics@acornuser.com

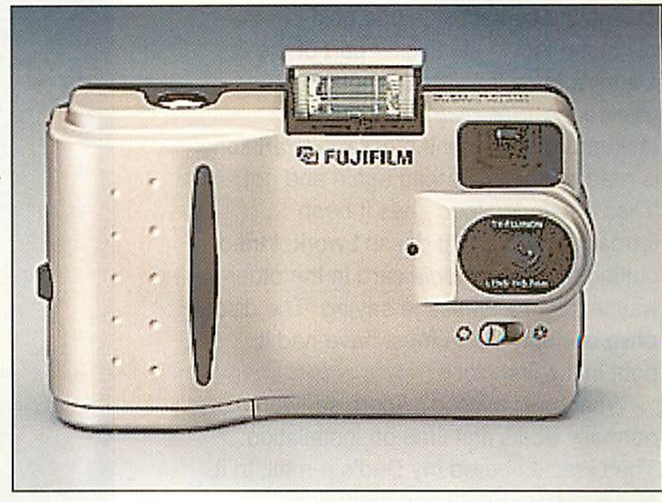
The joys of DigiFlash

I have recently been experimenting with digital photography. My brother bought me a cheap digital camera (a Fujifilm *DX-5*) for Christmas a few years ago, and I have been really enjoying looking at my pictures online. I had been using a '*Windoze*' PC with the Fujifilm software (and cables), and as I'm transferring the pictures onto a *Zip* drive for eventual use on my *RiscPC/A7000+*, I wanted to eliminate the PC from the equation.

I was lucky enough to see the very recently completed *SmartMedia DigiFlash* software in action at Surftec's stand at *RISC OS 2001* at Bracknell. Surftec produce software for two media readers for Acorn hardware, both called *DigiFlash*. One deals with *SmartMedia* (little wafer thin cards with a chunk snipped from the corner) and the other with *CompactFlash* cards (these are chunkier - about the thickness of thin corrugated cardboard packaging). The latter Surftec hardware can also be used with the IBM *Microdrive* - so 1GB of data could potentially be held on one card! I purchased the *SmartMedia* version of DigiFlash, and that's the hardware I'll be reviewing.

Just before Christmas I received a large box (about 5 inches by 5 inches by 8 inches) which I knew to be my Christmas present from my folks. I had to fight back the temptation to open the box before Christmas! My father had previously forwarded me an e-mail he'd received from Surftec's Neil Farnham-Smith (who also writes for *Acorn User*) detailing how to set up the *DigiFlash SmartMedia* card reader. This mentioned something about an INFO file and setting this to type &000.

On Christmas Day, I eagerly opened the package to find a jiffy bag containing my new 16MB *SmartMedia* card (I'd found out before that the card reader would not work with my camera's supplied 2MB card), and a well cushioned *Camera Mate* hardware attachment in its PC packaging - complete with PC CD-ROMs should you wish to install on a PC (which I didn't).



The Fuji works with DigiFlash

The business end of the *Camera Mate* hardware consists of a U-shaped card reader with a slot for entering the *SmartMedia* card. Some electronics are visible through its smoked perspex cover. At the other end of the cable are connectors for the printer and keyboard ports. These ports have flying leads attached so that you can connect your printer and keyboard to pass through these (see schematic drawing). The keyboard connector is the fairly standard PS/2 style - though some PCs have 5 Din ports (like old tape recorders) - I think all modern Acorn hardware has this kind of port. This gadget is probably unlikely to work on *A3000, A3010* or *A3020* series machines, as the keyboards are combined with the computer itself. Apparently the unit derives its power from the keyboard so needs no mains socket.

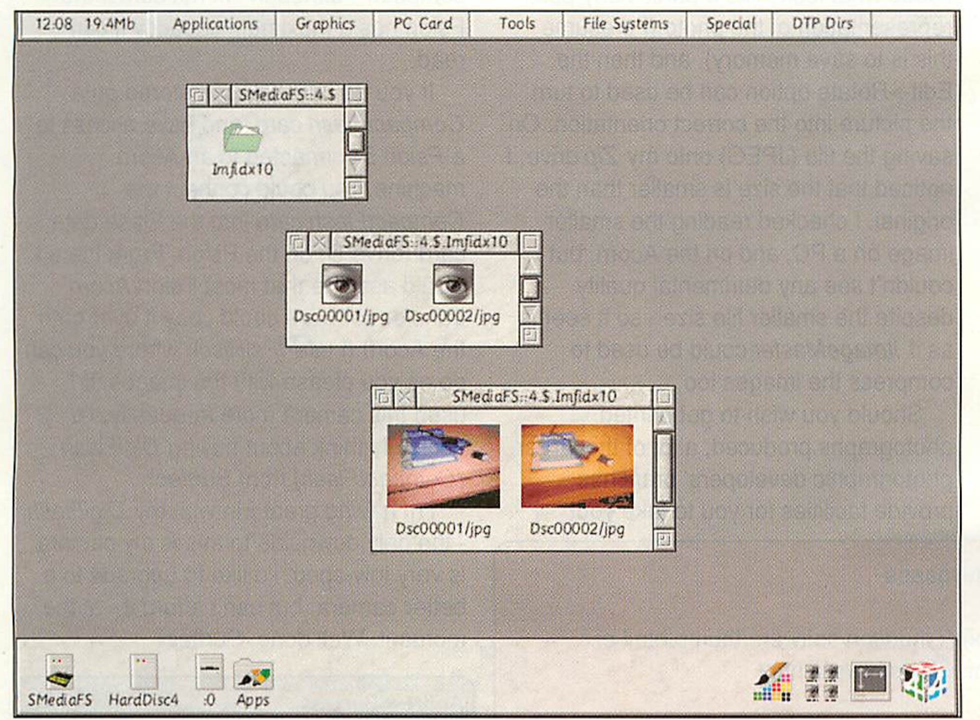
Also included was a very friendly, well presented little user guide - something PC hardware seldom has nowadays.

The hardware was simplicity itself to install. Remove the printer port from the back of the Acorn, and plug it into the flying lead from the new gadget, and plug that port into the Acorn. Then remove the keyboard connector and plug that into the keyboard flying lead, and then the new keyboard connector into the back of the Acorn.

I switched on the Acorn, and to my joy everything I'd added to still worked. The *Zip* drive responded (connected via printer port and a switch box), and there were no problems with the keyboard.

I then proceeded to copy the contents of the floppy disc supplied onto my hard disc (how amazing to have everything on one floppy - most PC software comes on a hard-to-install CD and always requires a reboot). The user guide even goes so far as to help one to install *!SMediaFS* into your boot sequence. I ran *!SMediaFS* from the *RISC OS 3*-style disc icon. It installed a *RISC OS 4*-style hard disc icon with a *SmartMedia* card overlaid. This looks great under *RISC OS 4*, but a little out of place on *RISC OS 3*. Nevertheless this doesn't distract from the functioning of the software.

It was now I hit my first problem. I didn't know which way to insert my



SmartMediaFS in action on a RISC OS 4 RiscPC

SmartMedia cartridge - there's no indication on the *Camera Mate* as to which way it should go in. I plumped for putting the contact side (the gold contacts) facing the thicker part of the Camera Mate towards the bottom. I clicked the *!SMediaFS* icon on my taskbar. I received the message "Partition is read protected". I tried again and got "Disc not understood - has it been formatted?". Great! It doesn't work. I tried putting the *SmartMedia* card in the other way, and got a message saying "The disc drive is empty" - so I must have had it right in the first place.

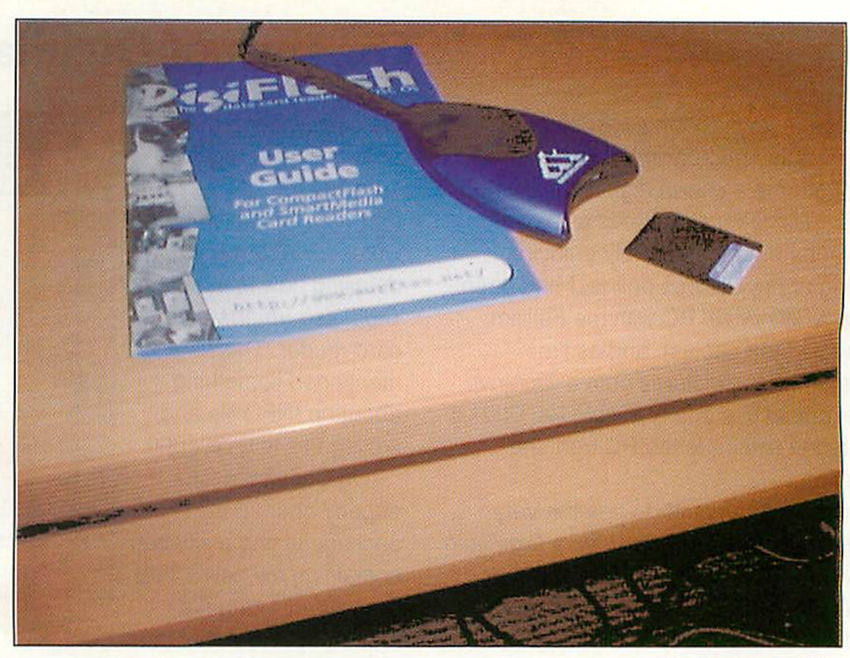
What had I missed? Acorn software normally works first time on installation. Then I remembered my Dad's e-mail. In it Neil Farnham-Smith had mentioned 'an attachment'. Nowhere in the mail could I find an attachment. I asked my Dad to resend it, and he forgot!

However, as he was 300 miles away in Newcastle, I thought I'd have a look when I was up for New Year. I fought my way through his Microsoft *Outlook Express* e-mail software, found this e-mail (complete with the attachment) and immediately forwarded myself a copy. I checked what it was prepared to send - and lo and behold - no attachment. I eventually worked out how it could send the mail and the attachment, and sent it.

Returning back home, I picked up the e-mail (and the attachment), copied it into the *!SMediaFS* application folder, set the type to &000, and restarted *!SMediaFS*. The hourglass appeared, and after a short space of time it was ready to go.

I put my card into the reader, and clicked *!SMediaFS* on the taskbar. A filer window appeared with a folder. I clicked on this, and wonder of wonders all my pictures appeared in their native names i.e. DSC00xxx/JPG. I could now click on these, and *!ChangeFSI* loaded them up when I double clicked on a picture.

I then didn't use *!SMediaFS* for a while - returning to use it mid-January. Horror! I got the "Partition is Read Protected" error again. I contacted Neil Farnham-Smith, and he directed me to the Support area of Surftec's Web site (**www.surftec.com**). On that I found what I'd been looking for - the latest update to *!SMediaFS*, version 2 to download - and the information that



The Surftec bundle

version 1 had now been disabled, hence the reason for my error.

I installed version 2, and could see my photos again. It's great to be able to download my photos direct from the camera card without resorting to using the Evil Empire's software.

I use *!Thump* to give me thumbnail views of the pictures direct from the camera. I can then double-click the pictures to see full screen images. Unfortunately *!Thump* doesn't translate pictures taken in the wrong orientation (eg Portrait to Landscape or vice versa), so to do this I use David Pilling's scanning and manipulation software (formerly known as *ImageMaster*). This lloads what looks like a particularly poor representation of the photo (I presume this is to save memory), and then the Edit->Rotate option can be used to turn the picture into the correct orientation. On saving the file (JPEG) onto my *Zip* drive, I noticed that the size is smaller than the original. I checked reading the smaller image on a PC, and on the Acorn, but I couldn't see any detrimental quality despite the smaller file size - so it seems as if *!ImageMaster* could be used to compress the images too.

Should you wish to get printed photographs produced, a lot of the larger photographic developers' branches provide facilities for you to take your floppy disc, *Zip* drive and other media to get made into photos. Also Internet Cameras Direct (see adverts in *Acorn User*) provide a prints (by post) from digital images service (you have to upload your pictures). A word of warning, though, if you have a low-resolution camera (mine is 640x480 and 0.35 megapixels) then the photographs can look a bit 'blocky'.

I have occasional access to a high-quality Nikon *CoolPix (CompactFlash)* camera and have been using that with the cables through a PC - until the cable stopped working. I eventually found out (after transferring via a PC) that the card could have been read by my *Psion 5* computer - although I'm not sure if the Psion has a maximum capacity it can read.

If you do have images stored on a *CompactFlash* card, and have access to a *Psion 5* connected to an Acorn machine, you could connect the *CompactFlash* card into the Flash data card (drive D) on the Psion. From there I would assume that most Psion/Acorn transfer software could copy it over onto the Acorn (I use *!PsiRisc*), where you can do as you please with the images. If I used this camera more frequently, I'd definitely think about buying *DigiFlash (CompactFlash)* from Surftec!

I'm having great fun with my *DigiFlash* - the only downside to this is my camera is very low-spec. I'd like to upgrade to a better camera, but can't afford it - at the moment. Well done, Surftec!

Andrew Burgess
ajburgess@argonet.co.uk

Web addresses

Thump:	hammer.prohosting.com/~rhudson/software/thump.html or www.actrix.gen.nz/users/rick/software.html
Surftec:	www.surftec.net
Scanner software:	www.davidpilling.net

WIN a copy of Ovation Pro



Acorn User is now produced using Ovation Pro, the professional desktop publishing system for RISC OS.

For a chance of winning a copy, answering the following simple question:

What archive formats can SparkPlug unpack?

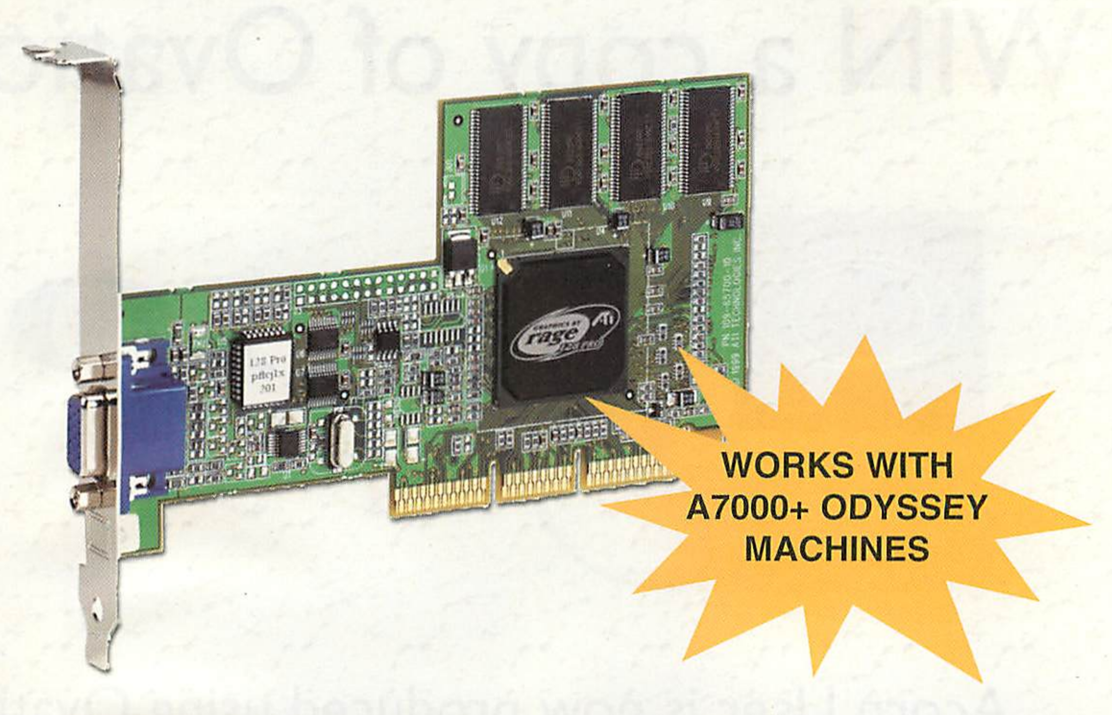
The answer can be found at www.davidpilling.net

Send your answer on a postcard marked Acorn User April Competition to:

Tau Press Ltd, 28a Middle Hillgate, Stockport, SK1 3AY. United Kingdom.

Entries should be in by 14/04/2002

Step into the future



With the ViewFinder graphics card from Windfall Engineering, your computing experience will be transformed. With graphics accelleration and high specification screen modes capable of driving the latest monitors to the limit, ViewFinder is the future of Acorn Risc PC graphics.

Incorporating the popular ATi XPert 2000 Pro AGP graphics card, ViewFinder gives you graphics capabilities never before seen on the Risc PC. With a massive 32 megabytes of video RAM, ViewFinder removes the limitations of the Risc PC's video system, offering higher resolutions, more colours and a flicker free display for the ultimate high-productivity environment.

See the difference ViewFinder makes :

Colours	Standard Risc PC	ViewFinder (examples)
16 million	800 x 600 @ 60 Hz	2048 x 1536 @ 67 Hz, 1920 x 1440 @ 74 Hz, 1600 x 1200 @ 91 Hz
32 thousand	1024 x 768 @ 75 Hz	2048 x 1536 @ 72 Hz, 1920 x 1440 @ 76 Hz, 1600 x 1200 @ 91 Hz
256	1280 x 1024 @ 80 Hz	2048 x 1536 @ 72 Hz, 1920 x 1440 @ 76 Hz, 1600 x 1200 @ 91 Hz

ViewFinder is available direct from Windfall Engineering, or contact your preferred RISC OS dealer.
For further information and technical specifications, please visit the Windfall Engineering web site.



The fastest 56MHz computers on the 'Net

We had been hoping to bring you a review of a Microdigital *Mico* Internet machine this month, but unfortunately we were unable to secure a machine to review. David Atkins has expressed the wish that Microdigital be left out of this particular review, so it's now a straight contest between Castle Technology and RiscStation.

Before I delve into the pros and cons of each machine, here is a brief reminder of the purpose of this series. Over the past year-and-a-half, the announcement of the *Omega* has shifted all focus firmly on high-end machines and what the future will bring. As a direct consequence of this, many have perceived even *StrongARM RiscPCs* as being slow and out-of-date and the 56MHz machines as being totally unsuitable for any serious modern-day computer user.

There is a group of *RISC OS* users who are still managing on *A5000* machines (or even older) who really do need to upgrade for one reason or another. Perhaps they would like to use the Internet (anything less than a first-generation *RiscPC* simply won't cut the mustard here), or try their hand at some desktop publishing. Due to either cost or a perception of current hardware set to be superseded at any point (or perhaps both), these users are holding out from purchasing a new computer and struggling along with their *Archimedes* computers.

Another group of users in similar circumstances are schools. Many schools plod on with their suites of Archimedes machines and then compare 'slow Acorns' with modern 'fast' PCs. They can't afford lots of new *RiscPCs*, or think it would be money wasted.

The solution to both groups lies in the 56MHz computers. Despite what the MHz rating suggests, these computers are surprisingly capable machines. They'll deal with the Internet just fine and are powerful enough for desktop publishing and other general home or school use. For the user that wants a cheap *RISC OS* solution for general use, these machines are the perfect solution.

Of course, they will be superseded and there are already faster solutions in the form of the *StrongARM* and *Kinetic* range of *RiscPCs*. But an interesting point to consider is that when faster hardware appears using faster processors, it will be running a pure 32bit version of *RISC OS*. This will render many applications unusable as they will be designed to run on the current, so-called 26bit version of *RISC OS* and thus fail on any 32bit version. Buying a modern machine now means that when you get to buy a new, super-duper 32bit *RISC OS* computer, you will have a fast and capable 26bit machine to run your old software on (that which doesn't get ported to 32bit *RISC OS*).

The final point to note is that one has to remember that we are in *RISC OS* land here. 56MHz in *RISC OS* land is not comparable to 56MHz in the *Windows* world. The efficiency of *RISC OS*, the ARM RISC chips it runs on and of course the well-written software we use on it means that everything goes a lot faster than it would if it were a CISC (eg. *Windows*) system. That is why in this series, I have avoided numbers and instead concentrated on real-world performance. What was the machine like to use? Was it responsive? Was it reliable?

For this series, the manufacturers were asked to build machines specifically for Internet use. The machines were to be Internet-ready out of the box, with no need for extra hardware or software. Furthermore, it was specified that a 15" LCD display should be included in order to provide a flicker-free display. Again, the machine was to be preconfigured so that the display could simply be attached and the computer turned on. Apart from these necessary requirements, the manufacturers had a free reign on cost and features.

Now that the two separate reviews are complete, I will take a look at the pros and cons of each machine.

Castle's *A7000+ Odyssey Internet* machine was the first to go under the spotlight. It was very well packaged and everything was there that I had specified. When the delivery man left, I was left with a huge box standing in the living room. A little investigation revealed that inside were two more boxes, one containing the computer and the other containing the LCD display. The huge box was full of polystyrene to protect the two inner boxes and inside those was packaging to protect the actual contents.

This was very impressive and showed that Castle take great care in making sure your goods are as safe as possible as they get shipped across the kingdom to your front door.

The RiscStation system unfortunately needed two deliveries, as RiscStation had forgotten to include the modem, manual and the LCD display. That was not the best start to a review of an Internet computer, but everything was exceptionally well-packaged, offering maximum protection to the goods whilst in transit.

The *A7000+* case is very small and very attractive - definitely a good choice where room is limited or you want your computer to be a stylish addition to your desk. The LCD display sat neatly on top of the *A7000+* and the minimal modem tucked away nicely. A very attractive addition to any desk

The RiscStation machine uses a standard ATX case which, whilst rather much duller and PC-like, offers the distinct advantage of expandability. Indeed, the RiscStation machine came with a CD-RW and a *Zip* drive, as well as the standard floppy drive. The *A7000+* had room for just a CD-ROM drive and a floppy drive. The RiscStation could come in a Midi or full-tower ATX case, offering room for more drives, whereas the *A7000+* is severely limited in expandability. The RiscStation is definitely better off under the desk rather than on it - it is no eye-catcher and is rather too big to have on your desk anyway.

Having setup the *A7000+*, it faced its first real test. Would it actually turn on (occasionally a computer can be DOA - Dead On Arrival - and just not work at all) and would it be configured correctly? The computer turned on fine and had indeed been configured for use with the LCD panel. So far so good. the display was set at 800 x 600 with 32,000 colours but looked much better at 1024 x 768 with 256 colours. 15" LCD display normally have an optimal resolution of 1024 x 768 and you always get a much better picture when you run at an LCDs optimal resolution.

When it came to turning on the RiscStation machine, I was disappointed to find that it had not been configured for use with the supplied LCD display. I was even more disappointed that when I got asked for a monitor definition file, I instead had to delve inside !Boot and alter a file in a text editor. Fine for me, but perhaps not so good for someone who is *RISC OS*/computer-illiterate. Support was

prompt, however, and RiscStation assured me that a machine supplied to a customer would be configured correctly.

Further conversation with Roy at RiscStation revealed that the machine I got was actually their demonstration machine (due to the Christmas rush). He pointed out that RiscStation machines get packed in branded RiscStation packaging (similar to the Castle method) and of course arrive fully configured.

One of my pet hates about Acorn machines is the operating noise, which appears to be down to the power supplies. The *A7000+* was no exception, offering a high-pitched background noise - it doesn't bother me, but my housemate commented on it immediately.

The RiscStation machine, on the other hand, was almost totally silent. I can honestly say I've never come across a computer that was so quiet before. This is very good for working in quiet environments - machine noise in an office with other machines on goes unnoticed, but in a quiet study or bedroom, silence is appreciated!

The RiscStation motherboard is a new design and so has a faster bus than the *A7000+*, meaning data passes much more quickly around the system. This translates to more responsive operation, with loading and saving being faster, too. The *A7000+* was not far behind and is certainly still a very capable machine.

The software supplied with the machines brought mixed results. The *A7000+* came with *Oregano*, without doubt the best *RISC OS* browser at this present time. The RiscStation machine, on the other hand, was supplied with *WebsterXL*, which whilst quite nice, is certainly noticeably slower and less capable than *Oregano* at rendering Web sites.

Castle supply the freeware version of *Messenger*, whilst RiscStation supply the full commercial version. So, Castle have the better Web browser, but RiscStation have the better e-mail client. Will one of the companies change their bundle and provide the best of both worlds? Whoever does will gain the upper-hand...

The Castle machine lets you actually signup to a Freeserve account or just dial straight into the Internet with BT Click. Castle have opted to supply *Socketeer*, which is a nice piece of software, but doesn't offer the compatibility and ultra ease-of-use that *DialUp* does, which is what is supplied with the RiscStation machine. Put simply, *DialUp* is brilliant. It accepts .ins files, supplied for *Windows* users by ISPs and seems to work with just about any ISP.

Unfortunately, there was no way to actually signup with an account using the RiscStation machine. This means having to get your dealer or RiscStation to set one up for you, or indeed setting one up on another computer.

Again, then, we have a situation where neither machine outshines the other. What would be prudent would be for a machine to be supplied with *DialUp*, but with the facility to signup for an account.

The *A7000+* gains an edge over the RiscStation for actual Internet software due to providing the better browser and the ability to actually signup for an account from scratch. The RiscStation, however, offers faster hardware, very quiet operation and a good software bundle, basically let down by the browser and lack of signing up ability.

Late breaking news on the software front is that RiscStation supply a pretty impressive software bundle for non-Internet use that includes: *Easiwriter Pro, Fireworkz, Pipedream 4.5, Rhapsody 2, OHP, DrawWorks* and 2,100 fonts. This is information I did not actually have when I was originally reviewing the machine. For general use, then, the RiscStation comes with a lot of very good software – software that would normally cost a considerable amount to purchase separately.

If you want faster hardware, the RiscStation is the clear winner. With built-in networking, too, it's ideal for schools or those with another computer already. If getting connected for the first time is your reason for buying, then the Castle machine has the edge here, with *Oregano* providing the better browsing experience, too.

We'll leave the decision on price and features to you. In both cases, it is likely you will want to add some commercial software (such as *Messenger Pro* on the Castle machine and *Oregano* on the RiscStation) so this must be taken into account. As it stands, both machines have clear advantages over each other and it is really down to what you want from the machine that will effect your choice.

But we can't round off a series of reviews without mentioning prices – I deliberately left prices out of the initial reviews so that we could supply you with fair and accurate pricing now (computer prices fluctuate daily).

The *A7000+* has a RRP of £599 excluding deliver and VAT (£703.83 including VAT but not delivery). if you want the LCD display, the whole system weighs in a £898 excluding VAT and delivery (£1055.15 including VAT but not delivery).

RiscStation explained to me that the machine I had was actually a *Scorcher* machine with the *InSite* Internet pack and 15" LCD monitor added. Without the LCD monitor, the RiscStation *Internet* machine costs £836 excluding VAT and delivery (£928.30 including VAT but excluding delivery). If you would also like the 15" LCD, the whole system will cost £1106 excluding VAT and delivery (and £1299.55 including VAT but again not delivery).

For the next month only, the *Zip* drive will be 17.5% cheaper with a system, so the price will be slightly lower than this.

In the end, the RiscStation comes out more expensive but you are getting a 250Mb *Zip* drive and a CD-RW thrown in for this. There is also the rather extensive and useful software bundle to consider.

The *A7000+ Odyssey Internet* comes with a good software bundle and has the better overall set of Internet applications. It is by no means a slow machine, although the RiscStation is undeniably a faster machine.

Conclusion

So who's the winner? Speed, expandability and a very good software bundle points to the RiscStation as the winner. However, you can't signup for an Internet account from scratch with the RiscStation machine. It also ships a not-so-capable browser. Castle, on the other hand, counter these two failings very successfully.

This amounts to the conclusion that both machines are winners, depending on what you want. A new user wanting to signup for an Internet account or someone who doesn't want to pay extra for a better browser would be better off with the *A7000+ Internet Odyssey*.

On the other hand, those who will be using these machines for a lot of other general tasks would benefit from RiscStation's superior general software bundle and faster hardware.

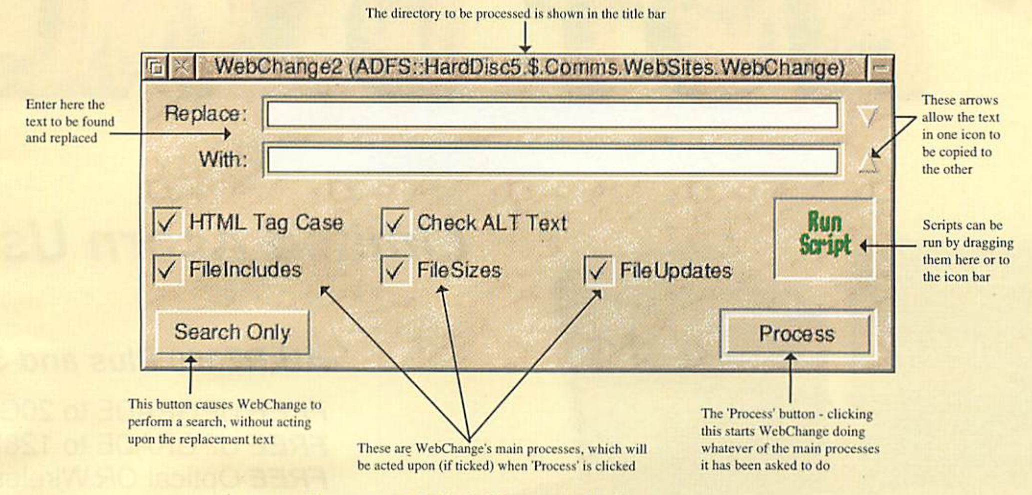
Both machines have their strengths and weaknesses. Hopefully by following this series, you can identify your needs and make the right choice. Do write in and tell us if you buy a machine and how you have found it in use.

Michael Stubbs
editor@acornuser.com

WebChange
The website maintainer's tool

WebChange is an application designed to help with the maintenance of websites, and is particularly suitable for those who prefer to modify their HTML by hand in a text editor, giving them full control of the HTML itself, rather than just the layout and content.

The software provides the user with a number of functions designed to simplify those tasks which might otherwise be repetitive in nature, such as changing a simple item of text on every page - but that very simple example is merely the tip of the iceberg.



Some of WebChange's features:

- **Search and Replace**
  Replace the same piece of text on each and every page of a site on which it appears.
- **Tag Case Conversion**
  Change the case of all HTML tags between upper and lower case at will.
- **Newline Conversion**
  Change newline codes quickly and easily between the formats used on different platforms.
- **File Date References**
  Check the datestamps of specified files, insert them into web pages, to show when they were last updated.
- **File Size References**
  Insert the sizes of specified files into web pages, to show visitors the size of files they may wish to download.
- **File Inclusion**
  Maintain a consistent look and feel across a site by keeping recurring HTML in separate files, to be inserted when updated.
- **ALT Text Insertion**
  Check that all images have some form of ALT text, inserting something if not.
- **Indexing**
  Generate an alphabetical index based on keywords in HTML tags.
- **Validation**
  Simplify the submission of pages to an online validator by generating a file containing a link for each page.
- **Filename Case Conversion**
  Change the case of all filenames from between UPPER, lower and Proper case, quickly and easily.
- **Filename Extensions**
  Change the .extensions of filenames between long (.html, .jpeg), short (.htm, .jpg) or none at all.
- **Script Language**
  Use WebChange's script language, to carry out any number of its built in functions on the local copy of a site, one after another.

SPECIAL OFFER

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Acorn User exclusive: TEK 1608 graphics artist on how the TEK world was created

After over four years hard work by a dedicated team of graphics artists, AI programmers, and programmers, Artex's latest games release - *TEK 1608* - is nearly here. For those who haven't heard of it, *TEK* is a home-grown, real-time strategy wargame, a bit like *Command and Conquer* on the PC. The game is set in the near future, after a nuclear war, and centres around two corporations who are both attempting to gain global control over the production of a vital drug called SHOQ, using all means possible.

From the gameplay point of view, the action focuses on the player directing their battle units across a 3D landscape in an attempt to achieve their objectives for the current mission. Of course, the opposing corporation have their own idea about what you, the player, can or can't do and there's a good deal of mayhem to be had before anyone finally comes out on top. Battle units increase in diversity as the game progresses. While at the start you may have only a handful of troopers and perhaps a jeep, it won't be long before you're commanding an army of helicopters, tanks, fighter aircraft and more. If you're good enough to survive, that is.

Unfortunately, since at the time of writing the finishing touches are still being added to the game, I can't give you a review (impartiality aside). Instead, what I hope to do in this article is provide an overview of how the *TEK* world was created, from the perspective of my role as a graphics artist. It should be noted that some of the images are mock-ups produced in *Compo*, but they shouldn't differ too much for what you see in the game.

One of the first tasks that I undertook when I got involved with *TEK* was the design of the buildings. Initial discussions with Jan Klose gave me an idea as to what type of buildings were required - for example an HQ and a repair station. However, I was fortunate to have a reasonably free reign when it came to their appearance. From the outset, I wanted to create a set of buildings that shared a common, clean and slightly futuristic look (fig I). I also wanted to try to make the graphics in *TEK* look as good as those of strategy games on other platforms, wherever possible.

As with most 3D design, the easiest place to start is simply to grab a pencil and paper and sketch various ideas using the world around you for inspiration. It doesn't matter how good an artist you are, just as long as the sketch catches the elements of the design you're trying to create. I'm certainly no wiz at drawing, as you can tell from the sketches of my prototypes (fig II). However, as you start to come up with some good ideas, try to refine them and then simplify some of the more promising designs so that you come up with something that can be modelled in a reasonable amount of time, using the tools you have available.

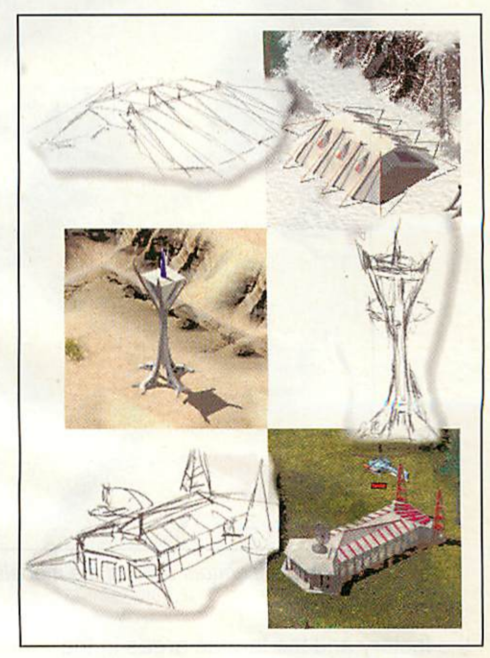


Fig II: sketches of prototypes

Inspiration for some of the *TEK* buildings came from as bizarre sources as a water tower and a tent. Nevertheless, it was also important to remember what the function of each building was, since despite your desire to innovate most people have an expectation as to what certain types of building look like. Get this wrong and you may find that the player becomes confused in the heat of the action - which will in turn put them off the game. Reference material is also really important - don't do what I did and research what a jeep actually looks like only after finishing off a design for a unit (which was then scrapped)! Examples of visual clues I included with the buildings to help identify their function were the chimneys on



Fig I: Futuristic buildings



Fig III: blast craters around the models

the factory and the tarmac areas in the case of the repair base.

Modelling of the buildings (and those battle units I was responsible for) was done in *TopModel* on my *RiscPC*. Each design was broken down into sections that were easy to model and then these sections were put together to create the final model. Since the units were going to be rendered at a relatively low resolution, I tried to concentrate on getting the overall appearance of the buildings right, rather than adding lots of minute detail that would never be seen.

One of the most difficult of all the graphical tasks was the creation of the destroyed buildings. However, it was one area that I was determined to crack, since the player's buildings could hardly just disappear, once destroyed. In the end, I found the best solution to this problem was to take the original model and replace sections, like walls, with jagged and extruded pieces. Other parts of the models were either distorted using *TopModel's* deformation tools, removed completely, or rotated to look like they had been blasted out of their original position. Texturing these models was quite difficult, and involved the use of textures from a stressed texture library I had recently purchased. I also ended up adding 'blast craters' around the models so that they would look more natural when placed in the landscape. Hopefully the results look convincing (fig III).

While I used my Acorn for a lot of the graphics work, I didn't hesitate to use my PC whenever I felt I could do the job faster using a PC-based application. For example, all the models were rendered using *Bryce* on the PC, since this is one area in which *RISC OS* hardware (and hence the software) simply can't compete. This threw up its own difficulties



Fig IV: Bryce was used to create TEK's rivers

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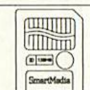
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Fig V: lots of special graphical elements make up a game like TEK

– for example models that were converted to a PC-compatible format using the standard tools lost all information about groups, which meant I couldn't select the bits of the model I wanted to apply textures to in *Bryce*. In the end I was forced to adopt the somewhat drastic measure of writing my own file conversion utility to solve the problem. Not perhaps the easiest thing to do at the time. However, in the end I felt the results justified the effort.

Although there was no easy solution to my file conversion problem, it's worth remembering that when you come across a particularly tricky problem it is likely that someone else has also run across it in the past – and solved it. In many cases help may come in the form of a Web page or friendly fellow user on the newsgroups, or even a software package that is designed to tackle the very problem you're trying to solve. For example, as well as being a rendering package, *Bryce* is primarily used to create natural looking 3D environments, so was the obvious choice for creating *TEK*'s rivers (fig IV). I also used another PC-based package to generate 3D models of vegetation (which wasn't available in *Bryce* at the time) - rather than attempt the laborious task of modelling them directly in *TopModel*.

Producing the graphics for a game of this type provides a number of challenges, not least the sheer volume of images that need to be created. For example, a single level is typically composed of the following elements : the units controlled by each player; the base buildings; ambient buildings; the tiles that make up the ground; the vegetation (trees, plants and bushes) and other background elements such as rocks, rivers, hills and 'specials' such as explosions (fig V). If you then take into account that some of these elements are animated, while others such as the battle units consist of a set of sprites which provide views of the unit from several angles, you can start to see why there's a

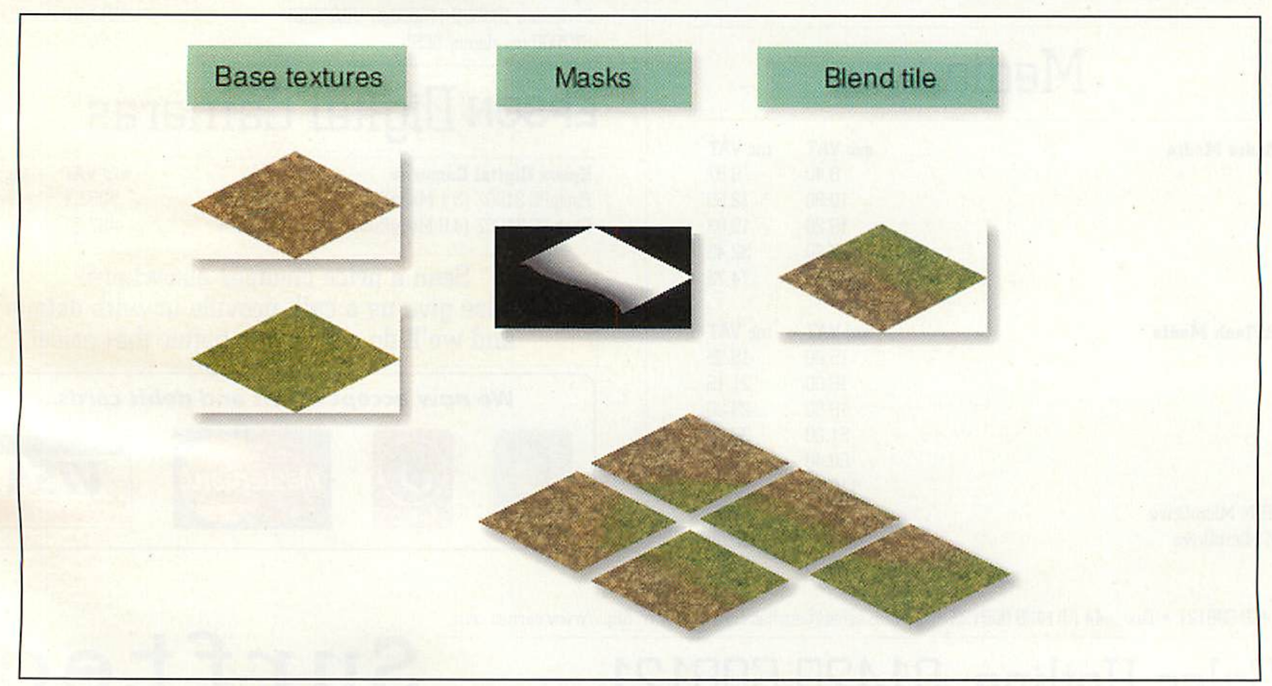


Fig VI: there are around 30 different types of blend tiles which can be slotted together to create patches of terrain

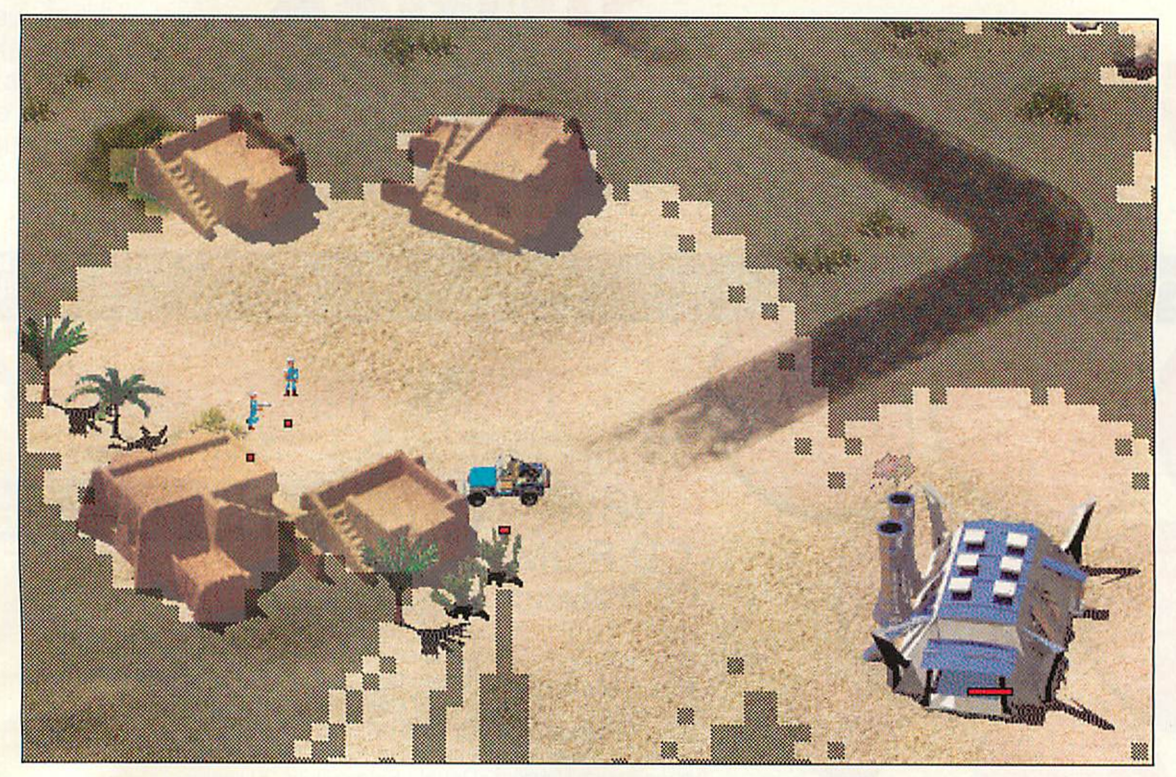


Fig VII: line of light shading

lot of work involved – and perhaps why it can take so long to go from a concept to a finished product.

All in all I've probably created thousands of sprites for *TEK*. When you work at this scale, you are constantly on the lookout for things to make your life easier. In my case, salvation came in the form of *Compo* (and *Composcript*). Simply speaking, without it, *TEK* wouldn't look anything like it does today and *Compo* saved me hundreds of hours, hours that were reinvested in creating more varied environments for *TEK*.

So what's so good about *Compo*? Firstly, it was invaluable for creating level mock-ups (some of the screenshots shown are mock-ups produced in *Compo*). These enabled me to provide feedback to Jan at Artex, check out new ideas, create sprites that could slot directly into the game engine and also refine the designs. Secondly, it's masking and compositing tools are really good and allow you to overlay several elements while retaining the ability to alter their position until you get the result you want. Thirdly, once I had found a solution to a problem, I was often able to automate the process using *Composcript*, which is a programming language for *Compo*.

One task that benefited from *Composcript* was the creation of tiles that blend between one type of background texture to another, for example grass to mud in the jungle region. This process involved taking an alpha mask (originally designed using a blend in *Artworks*) and applying it to one of the textures (mud), which was then overlaid on the other texture (light grass). The result was then saved with a one-bit-mask which defines the diamond shape of the tile. There are about 30 different types of blend tiles, which can be slotted together to create 'patches' of a particular type of terrain (fig VI). As you can imagine, the process of doing this 'by hand' could take quite a long time. However, once I had written a *Composcript* program I could just 'point' *Compo* at the two base textures and then let it get on with producing a complete set of blend tiles.

One of the more unusual features of the *TEK* engine are hills, which can be used to hide behind. This enhances the gameplay considerably, and looks fantastic when combined with the engine's other unusual feature - line of sight shading (fig VII). You can actually drive up to a building and fail to spot an enemy unit that is hiding round the far side, alternatively you can use the high ground to see more of the surrounding landscape. It's a really impressive feature that also looks great and all credit goes to the *TEK* programming team for creating something really special.

Towards the end of the project, it became apparent that although many of the necessary graphical elements had been created, there still remained a need for something extra. To me, some of the prototype levels seemed a little empty. The solution we came up with was to create extra features to vary the structure of the levels. These extras took the form of cliffs, suggested by Jan, which enabled more interesting levels to be designed through the creation of no-go areas, as well as roads, waterfalls and tiles that incorporated background features such as plants, which could be used to break up large areas of grass. Adding these relatively small touches had a dramatic impact on some of the levels and resulted in a much more immersive experience.

While I could continue to describe how other elements of *TEK*'s graphics were tackled (vegetation, ambient buildings, units, etc), the result would probably fill a whole copy of *Acorn User*, so I'd better bring things to a close. Hopefully this article has whetted your appetite and given you an insight into some of the difficulties and solutions that can be encountered while working on the graphics for a game of this type. It's amazing to think that I still haven't met most of the *TEK* team, and virtually all correspondence has been conducted via e-mail.

If all goes well the real test of how good a job the team has done will come when the game is released, which should be around the same time you're reading this. Hopefully, you'll like the results – we certainly do!

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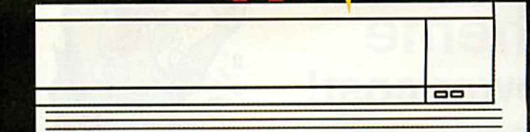
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Showing off in the south-west of the UK

The RISC OS South West Show 2002 took place on Saturday 2nd March in Loxton, Somerset. The show is organised by John Stonier, who previously organised similar shows for both the Midlands and the South East as well as the South West, and is run by the Bristol Acorn Risc User Group and Wessex ARM User Group.

From the "wrong" side of London, Loxton is about a four hundred mile round trip for me, so I hadn't even considered attending the show in its early years. But I had found time to visit the show in 2001 and enjoyed it, so I decided to make the journey again, this time sharing my car with some other ROUGOL members. Navigation to the show by road is fairly simple, with all but the last few miles being motorway; and it's amazing how much progress can be made (even round the M25) by setting off before dawn on a Saturday!

Sadly I didn't set off quite as early as I'd hoped, and a delay on the M4 meant that I missed the first presentation of the day, which was by Castle's Jack Lillingston. The main news of the day from Castle was the presence of the prototype 100Mbit network cards (for both NIC slot and podule slot of *RiscPC* and *A7000*) which had been announced previously.

100Mbit network cards were very much the flavour of the day, with the show also seeing an announcement from Roy Heslop (CTA Direct and RiscStation) of a different 100Mbit card to be available as an ISA card upgrade for RiscStation users, and as a NIC slot card for *RiscPC* and *A7000* users. This card is planned to be rather cheaper than the Castle offering, at £69 excluding delivery and VAT, and also provides 512KB of flash ROM as an extra, for those who wish to program some of their modules into ROM rather than loading them from disk.

For those puzzled by this sudden proliferation of network cards, it's worth explaining that current network cards in *RISC OS* computers, mostly from either ANT or i-cubed, almost all provide only 10MBit ethernet capability (there are also some old, and even slower, Econet cards lurking in a few places, plus some more unusual ones). As the name suggests, 100Mbit ethernet provides a theoretical maximum performance up to ten times greater than the existing 10MBit system.

It's unlikely that we'll see the full benefit of this on any existing *RISC OS* computers, due mostly to memory bandwidth being insufficient to take advantage of the full 100Mbit speed. However, even in the *RiscPC* (sadly the worst case due to its ageing memory bus), speed improvements at least doubling current transfer rates are expected.

For those who sometimes find that copying substantial amounts of data to or from *RISC OS* machines is slow, or those who need greater network bandwidth for specific applications, these new cards are exactly what's needed. Even those users who haven't yet installed network cards in their *RISC OS* computers would be well advised to go for the 100Mbit versions as their first network card, since some new *RISC OS* computers (Cumana's Slym and RiscStation's laptop) have 100MBit networking as standard. In addition, the new 100Mbit cards are roughly the same price as the old 10Mbit ones (in Castle's case), or even cheaper (in the case of the card from CTA).

There's nothing to stop you using the 100Mbit network card in your RiscStation laptop to connect it to an old 10MBit card; but it makes sense to start off with the higher speed, rather than having to upgrade later.

Having said all that, there are bound to be a great many old 10Mbit network cards in the second hand market once the new upgrades begin shipping; so if you've never been able to justify the expense of a home network before, this is your chance!

Some have questioned whether the separate development and almost simultaneous release of two 100MBit network cards for *RISC OS* computers is an unnecessary duplication of effort. However, the companies involved have made clear (it was mentioned in Roy Heslop's presentation) that their respective cards are the result of work which they have been doing for other products anyway. In Roy's case, 100MBit networking has recently been added as standard to the design of the RiscStation laptop; and in Castle's case, Cumana's Slym product also requires a 100MBit interface.

The upshot is that the *RISC OS* market looks likely to move on from one ethernet speed to the next very quickly, with some competition between different products to get things *going!* Within a few days of the show, Castle responded to the cheaper alternative network card by announcing a special offer whereby purchasers of Castle's 100Mbit network card for NIC slots (not podules) receive a free *RiscPC* case slice. This offer ends on 31st March 2002, so may be too late for many readers, but it's certainly an indication that competition in sales of the new faster cards produces benefits for customers.

In his presentation, Roy Heslop pointed out that the 100Mbit network card wasn't the only technology spin off from the RiscStation laptop; the availability of desktop RiscStations with faster 50ns memory was another result. This faster memory can make a big difference in speed when using more demanding screen modes on the RiscStation.

Understandably, the audience at Roy's talk was primarily interested in the RiscStation laptop. This could still only be viewed as a case design running Windows rather than *RISC OS*, albeit with screensavers and other devices to give an idea of the likely appearance of the final product. Roy re-iterated that shipments of the laptop to customers (or rather, to those who've placed deposits!) were still planned to begin in late April.

It was mentioned again that the laptops will be built in discrete batches, with the result that anyone who doesn't place their deposit in time to secure a machine from the first batch, may have to wait a very long time for enough orders to accumulate in order to manufacture another batch.

This is a sad aspect of reality that *RISC OS* users have experienced as long ago as the *StrongARM* upgrade, so if you really need to have your laptop by a specific date, it's best to place the deposit as soon as possible.

Roy confirmed that the *RISC OS 4* GUI of the laptop would be visually different from existing *RISC OS 4* systems, with a changed look that retains the same basic appearance and operation, but has a smoother and more spacious feel that he said bore some similarities to aspects of both *Windows XP* and *Mac OS X*.

Part of the reasoning behind this is that Roy is keen to see the laptop used to promote *RISC OS* outside its existing markets and user base. In fact, he said that a portable *RISC OS* machine is

absolutely essential in giving people outside the existing *RISC OS* market the chance to see *RISC OS* in action.

Roy pointed out that very few people outside the existing market are aware of the qualities and advantages of *RISC OS*; he runs a high street shop which caters for ordinary *Windows* users as well as others, and many of them immediately assume that *RISC OS* is "something from Apple" when they see it running in the shop!

Roy then moved on to the specification of the laptop. One possible cause of confusion here is the distinction between what's promised as part of the laptop "on its own", and what will come with the optional docking station at extra cost. Unless specified otherwise, all of the features below were mentioned as being part of the basic laptop specification on its own.

As well as the ordinary SVGA video output previously announced (to drive standard monitors), it will also have an S-Video output, suitable for driving TV monitors (and indeed many televisions). Both these outputs will be capable of resolutions up to 1600x1200.

Another likely extra is a MIDI port, though this may need a small adapter in order to be used.

Of importance to many people is the promise of a modem socket. Roy said that this was likely to be a Mac-style 8 pin DIN socket driven by soft modem software, and that the adapter required to connect it to an ordinary telephone socket is an off the shelf item. On a similar note, he expected that support for serial connections using the laptop's IRDA (infra red) port would be available by the time of release, thus allowing wireless Internet access via mobile phones or similar devices, as well as other possibilities.

He was less optimistic about the provision of a full IRDA stack, saying that this was a considerable amount of development work and would be justified only if there was sufficient demand.

The laptop will have a single PCMCIA slot (the established standard for small plug in cards for portables), and the first priority will be to get a modem card working. As with full IRDA support, development of any further add on cards would depend entirely on whether demand justified them (although Roy did say that a radio based LAN card was being worked on). It's a pity that there are some possibilities that may never come to fruition because of limited demand; but even so it seems that the laptop will have a whole host of connectivity options never before seen in production *RISC OS* computers, even at its release. The good thing about features being driven by demand is that those extras of particular importance to certain people are being added to the specification; the infra red support being one example.

As expected, there will also be connections for an external microphone and speakers, as well as internal stereo speakers which Roy said would be reasonable quality. As yet another unexpected extra, Roy raised the possibility of a mini printer port (requiring a special cable) in the laptop itself. He admitted that the profusion of extra ports being added to the laptop itself would tend to decrease the attraction of the docking station!

As well as a full size parallel printer port, the docking station will include an alternative ethernet connector, CD-ROM and floppy drive, an SVGA output to drive your monitor, and serial and PS2 ports. One visitor asked the best way to access material on CD and floppy if unwilling to pay extra for the docking station. The best solution to this may well be to use the network card (which comes as standard with the basic laptop) to connect to your existing *RISC OS* system (or even a PC!) in order to install software.

Of course, this is a disadvantage if you're given a CD "on the road" and want to look at it straight away whilst nowhere near any computers at all; but the impetus to keep the laptop small and light does result in compromises (even some PC laptops substantially larger than the RiscStation model don't include CD or floppy).

In terms of portability, Roy also mentioned that the base station is roughly the same size as the laptop itself (the connector to join them is on the underside of the laptop), so those who do buy one would have the option of taking it with them if necessary. Roy did also mention the possibility of a separate CD drive (to connect to the laptop via USB) later.

Roy also said that there would "probably" be a separate mouse connector, but even if not, the use of USB mice via the laptop's USB port would be possible. The laptop itself will effectively have three buttons in addition to it's touch pad, with RISC OS software that gives users the choice of which button will be Select, Menu and Adjust. The laptop case also has a cleverly hidden pointer for the *touchscreen*.

On the question of power, the plan is still for a standard battery giving approximately three hours' use, and an optional more expensive one (the same physical size) giving around six hours' use. Roy mentioned the possibility of a "super battery" giving even longer use, but again this would depend on demand. An adapter to power the laptop from car cigarette lighter power supplies will be available as an option, but Roy said that he couldn't guarantee that this would also power the docking station until it had been tested.

RISC OS Ltd

The talk by Paul Middleton of RISCOS Ltd followed almost immediately after the RiscStation talk. At the previous year's South West Show, Paul had caused some consternation by talking hardly at all about *RISC OS* as a desktop operating system, but instead spending the entire talk on his vision of how computing would develop in the future. This year, however, things were very different. A show of hands revealed that very few in the audience had seen Paul's previous presentations explaining and demonstrating the developments under way in *RISC OS Select*, so Paul used the majority of his allotted time to demonstrate some of the features in the current Select beta, as well as some of those under development.

Much of this material has already been covered in *Acorn User*, so I won't dwell on it here, however it's worth mentioning a few of the additional enhancements gradually appearing. These build on the facilities that were added as part of the original *Select* developments. For example, a major component of Select has been the re-organisation of the configuration options normally accessed via double-clicking !Boot.

The ability to utilise configuration plug ins from third parties means that this can now be expanded. One such third party plug in already available is the Apps configuration which allows alteration of the default settings for *Draw*, *Edit*, *Paint* and *SciCalc*. *Draw* in particular has a whole range of possible configuration settings which most users have never been aware of.

Replay is another area which will make use of a configuration plug in, and Paul demonstrated some of the possibilities which will be available. Multi-tasking *Replay*, which has been available in beta versions even since the Acorn

days, will finally make an appearance, and there will even be an option to have a *Replay* movie playing as your backdrop. This latter facility can require a huge amount of processor power, though, and its demonstration (involving a German language version of a film that was clearly familiar to some sci-fi enthusiasts in the audience!) threatened to take over the entire machine unintentionally.

Another new possibility is for *RISC OS* automatically to run a *DiscKnight* check of the hard disk if the operating system detects that the computer was not shut down properly. Those *Select* users who were annoyed by the message about the computer not having been shut down properly, which was introduced in previous versions, will be pleased to hear that the automatic disk check is optional! The possibility was also raised that even the warning may possibly become optional in a future version of *Select*.

OmniClient is another area that has seen development under *Select*, and as well as the ability to access files on other operating systems (which under *Select* now adds an *AppleTalk* client for accessing Macintosh systems), Paul mentioned that "OmniFTP" was now on the way, allowing FTP servers to be accessed in the same way that *OmniClient* shows other computers' filesystems. Paul said that a single configuration setup will eventually cover both the internet facilities including in the operating system, and the extra internet components that form the *ANT Suite*.

A great many users have clamoured for DHCP support in *RISC OS*, and Paul said that work on this had therefore been brought forward as a priority, in preference to other developments; release is therefore likely to be quite soon. He also admitted that there had been much longer than expected delays in the release of the first *Select* CD, which many *Select* subscribers are waiting for before installing *Select*, rather than trusting the beta versions downloadable from the *Select* Web site. The final problems with the CD version are being resolved, and it is hoped that its delivery is therefore imminent.

Whilst demonstrating the configuration options allowing the user to decide which version of *RISC OS* to softload at the next boot up, Paul mentioned the possibility of softloading something other than *RISC OS*.

No more was said about this, but it's certainly an intriguing possibility.There was a reminder that the computer should be switched off completely (not just rebooted) when choosing which *RISC OS* version and boot sequence to use, as forgetting to do this has caused problems for a number of people.

The ability to edit JPEG graphics files directly just by dragging them to Paint is one of the additions of *Select*, and Paul said that future development would see multiple save options in Paint, so that one can save in Sprite, JPEG or other formats, as well as deciding what quality to save a JPEG as (essential if you're saving graphics for web pages, or doing photo retouching and aiming to maintain the quality of the original).

There will apparently even be an "HTML" save option, which will save a piece of HTML with the correct HREF link and SIZE options, ready to drop straight into your HTML page in order to reference the JPEG you're editing.

Another development on the graphical front will be an updated version of AWViewer. With the assistance of Martin Wuerthner, this will support viewing of all the new types of ArtWorks files possible with the new versions of ArtWorks being developed by Martin, which have moved forward by leaps and bounds in recent months.

It's worth re-iterating that I've mentioned just the new things over and above the existing *Select* developments, which stood out in what was mentioned; the actual demonstration of *Select* covered far more, even though it was substantially shorter than Paul's more comprehensive run throughs and explanations at user groups. Detractors of *Select* have described it as just trivial tweaks and "fun" add-ons, using the new version of Puzzle as an example. However, Paul emphasised that the more light-hearted changes such as Puzzle have been worked on by individuals, rather than using RISCOS Ltd's programming resource.

The talk also covered *RON*, the project to create a version of *RISC OS* for the *StrongARM 1100*-powered Psion *netBook*. Paul said that work on *RON* was still continuing as resources allowed, however it was unclear whether it would appear as a full implementation of *RISC OS* (similar to the desktop version), or whether the requirements of those funding the work would be for a less complete implementation.

Paul mentioned that the *SA1100* offered noticeable performance improvements in some areas over the *SA110* currently used in desktop machines, for example being extremely fast at running *Doom*! *RON* may even move to a different Psion system other than the *netBook*, if circumstances so dictate. On a more positive note than previous comments on the topic, Paul also said that the work done on the *RON* project would help to act a stepping stone to the changes in *RISC OS* required for ARM hardware of other types. He did however point out that the need for a 32-bit version of *RISC OS* was not quite as urgent as some have claimed, with the next generation *XScale* processor being much slower to appear than expected.

The RISCOS Ltd talk did finish with a foray into similar ground covered by the talk at Loxton last year, with discussion of the potential of *RISC OS* in fields like network terminals and other client devices, rather than traditional desktop computers. However the details about *Select* and *RON* were of more interest to the traditional *RISC OS* users who made up the vast majority of the audience, so the less desktop oriented comments were fitted into the last five or ten minutes.

Moving back into the main area of the show, I now had time for a longer look around. The show had been very busy when I arrived, with a noticeable buzz of conversation, and the main hall seeming just as full as it had been the previous year. Most of the exhibitors I spoke to said that business had been as good as the previous year, with one or two even saying it was better. However as the afternoon drew on the show became quiet much more quickly than the previous year, perhaps partly because of the comparatively small number of new products being launched.

One new item for the show was Cumana's *SLYM* product, now in the even slimmer version which allows the system itself to be mounted in a metal case at the back of the 15" LCD screen, thus allowing the complete unit to be "hung on a wall" if necessary, using no deskspace or floorspace at all. The version which had been seen at the *BETT* show, with the system housed in a see-through plastic case, was also on show. This case design won't be used in the production versions, although it apparently got quite a good reception from a lot of educational users at *BETT*.

Cumana also emphasised that they are able to produce systems in any case design required, if needed for a particular customer.

The Slym uses Castle's *Neuron^{100}* board with a 64MHz *ARM7500FE*, and Castle also had some news on the *Neuron^{100}'s* successors. The *Neuron^{200}* will definitely use a *StrongARM 110*, and will eventually supersede Castle's existing *A7000+* and *RiscPC* designs by being incorporated into the existing cases.

No in-depth information on the *Neuron^{200}* design was available, and it seems likely that any desktop machine based on it will not appear for some considerable time. Even so, it offers the prospect of a new *StrongARM*-based desktop computer which does away with the *RiscPC's* weaknesses of slow memory bus and I/O, whilst presumably also incorporating more modern connectivity options. Even though the current specifications for Neuron 200 indicate an "old" *RiscPC*-style hard disk interface with only 2MB/second throughput, the project is still a very welcome development, particularly if delays continue to affect other projects such as MicroDigital's *Omega*.

Castle also released at the show, to complement their new network card releases, a sophisticated home network pack. This includes network cards, thirty metres of suitable cabling (experience tells me that at least some network cables suitable for 10Mbit connections won't be sufficient for error free 100MBit connections!), and a switch/router which offers trouble free use with ISDN or broadband ADSL connections, as well as other options. If we also consider the home network packs offered by R-Comp, it's clear that networking will once again be a major topic in the *RISC OS* enthusiast arena.

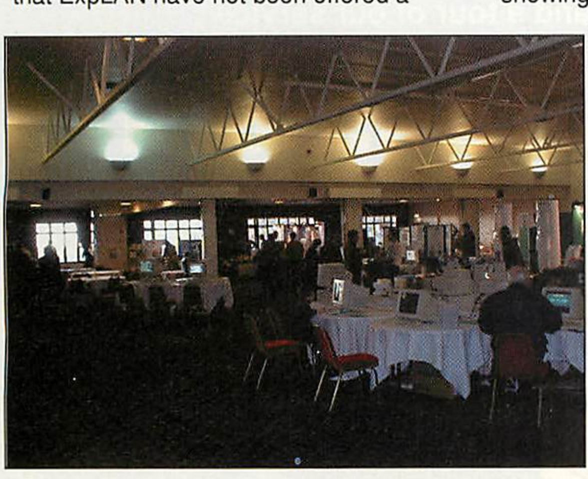
I missed the talk given by Paul Richardson of ExpLAN, however it seems that the news was not good with regard to the *RISC OS* version of their *Solo* computer. From what Paul said, it seems that ExpLAN have not been offered a license for a version of *RISC OS* that will suit their requirements. These include a 32-bit capable *RISC OS* to allow them to use *ARM9* processors with specific advantages for the *Solo*, as well as other features.

In addition, Paul had concerns over whether the current restrictions on the licensing and development of *RISC OS* would be a suitable fit for the Solo project's aims of providing IT solutions in countries whose economic relations with the developed world are problematic at best. At present it looks likely that the production versions of the Solo will utilise only *Linux* and *Windows CE*. There is a temptation to suspect that the latter might provoke similar concerns about one company having sole control over licensing and development of the OS, however the operating system in question does support the *ARM9*!

ExpLAN were also discussing USB printing at the show. The technology to do this from *RISC OS* had been developed by them some time ago, however fortune dealt a foul blow when the USB A4 inkjet printers from both Epson and Canon were both withdrawn from sale. Thus USB printing from RISC OS, offering a number of nice enhancements such as being able to monitor ink tank levels from the desktop, will not be available yet. ExpLAN were instead focusing mostly on sales of LCD monitors.

On the software front, *Virtual Acorn* was being demonstrated, and the Cerilica stand saw the first appearance at a show of *Insignia*, the new software for creating text titles; R-Comp had the *Server Edition* of *Messenger Pro* on sale.

There was no shortage of exhibitors, with familiar faces from other *RISC OS* shows including Chris Hornby of Photodesk Ltd (hinting that USB solutions for cameras might be on sale by the Wakefield show), and Mike Williams showing off *Acorn Publisher* magazine and a wide range of design books for both print and web.



Local shows like *RISC OS South West* have a number of advantages. Not only does it give people in the area a chance to meet up with *RISC OS* dealers and developers without journeying several hundred miles (and those of us happy to travel such distances another chance to catch up with recent *RISC OS* events!), but it also provides a showcase for those smaller dealers and developers who wouldn't normally be able to make the journey to any other show.

Examples included Vince Hudd's Soft Rock Software with *WebChange*, Brian Jacques with the HTML tutor CD, and StrongARM Systems with their *Cognitive Rehabilitation* software. Other small exhibitors had made rather longer journeys, with Jonathan Duddington's *Pluto 2*, John Cartmell's range of Fleur Designs board games, and Robin Edward's company Serious Statistical Software all having stands.

The show had a well produced and professional printed guide which also came with handouts from Melotech and CJE, plus a free sticker from RISCOS Ltd for those with *RISC OS 4* to attach to their systems! As I have three such systems, only giving away one sticker seemed a bit unfair, but perhaps some more will be available at the Wakefield show?

One unfortunate aspect of the show, from my point of view as a visitor, was the haste with which many exhibitors sought to dismantle their stands long before the official show time was over. Admittedly the show was very quiet indeed during the last hour or two, and I know that some exhibitors had specific commitments elsewhere.

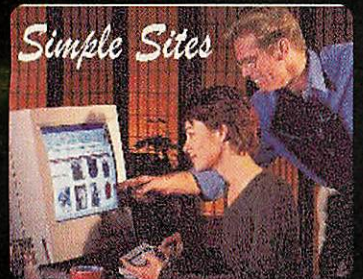
However, one must imagine the reaction of a visitor with their own time constraints, who perhaps made a special effort to reach the show by 3pm, thinking that they would have an hour and a half to browse the stands. They would be very disappointed to find a substantial proportion of exhibitors beginning to pack up soon afterwards, with some even leaving before the advertised closing time.

A commendable exception - albeit perhaps of less interest to the average *RISC OS* user - were the *NetBSD* team, with *BSD* running on *RiscPCs* and even an *A3020* (that must be slow!), and furry red daemons keen to do... whatever it is that daemons do, all night if necessary.

Leaving aside that one negative aspect (which is mostly beyond the organiser's control), I enjoyed this year's *RISC OS South West Show* just as much as last year's.

And I even found that there were many things I had to catch up on later in order to produce this report, so it was certainly far from being an uneventful show.

dgs
dgs@argonet.co.uk







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Part 4: Tracking media

In the last issue we covered the creation of the basic elements of *MediaTrak* program from data types to elementary programming and a few simple commands. This time we will look at quite a lot of programming and other application resources in order to form the core of our program.

The first thing to cover is almost an apology: I have been using *S-Base* for a very long time, almost from the time the first version appeared. Since then I have spent a lot of time developing and refining an application shell that permitted extremely fast creation of relational database applications.

Unfortunately the crunch came when I turned this shell into a practical application that ran on an *A7000+* and it turned out to be so slow that it was virtually unusable. However it is a truism to say that no time spent programming is wasted, and I learned a lot.

What you will be creating from now on is based on my second attempt — something rather simpler than the juggernaut of my original work but with all the techniques honed.

The result of this and the next issue's work is a program skeleton which can be fleshed out to fill the requirements of many different applications — should you choose. We are familiar with skeleton applications in *BASIC*, such as Justin Fletcher's skeleton with *BASIC* libraries that make the creation of WIMP programs easier by shielding the programmer from the detail of WIMP programming.

In *S-Base* you are already shielded from the WIMP however the skeleton here provides a structure into which a program can be easily fitted and automates a lot of the necessary functions. So let's get to it.

Absolute constants

In the last article we looked at the usefulness of using a standard datatype to allow values to be changed later that affects the whole program in one fell swoop. Now let's look at constants.

5: Constant list: Media Track

Label	Value
IBM_INFOBOX	0
IBM_QUIT	1
APP_MAXITEMS	10
CTRL_ZONE_NONE	-1
CTRL_MAXZONES	10

Fig I: adding to the Constants resource

A constant is a name that is given to either a number, or a string, or even a calculation. Open up the Constants resource and you'll see the list that's preset, we want to add five new constants. Press Control+N and enter `IBM_INFOBOX`, press Return and put in a value of 0 (zero) and press Return again. That's your first one and it is added to the bottom of the list. Following the list add the other four as shown in Figure I.

Constants must always have capital letters and must not contain digits, but can have the underline character. The use of "IBM" has nothing to do with the computer company, it stands for Icon Bar Menu. We have two entries for this, one for the info box and the other for the Quit entry in the menu. We'll be using these later.

The other three constants are used in the skeleton structure we are creating and will be covered very soon.

Word to the wise: If you use a calculation in a Constant (bad choice of word in this case) you should put brackets around the outside. Let's say you have a Constant called *ADD_EM* defined as `3+3`, this is the effect it will have:

```
print ADD_EM      6
print 3+ADD_EM  9
print 3*ADD_EM  12 (not 18)
```

But if you define `ADD_EM` as `(3+3)` you get the expected answer of 18 in the final example.

Processing S-Base

Before we plunge into the deep end with the programming we must look at what *S-Base* does when it first starts up. One of the most important things is that it scans all the procedure resources and registers all the procedure names before starting to run anything — unlike *BASIC* which looks for procedure names only when they are requested.

But it is a little more complex than that, what *S-Base* does is take each procedure resource in turn and runs it, before running the "startup" program resource. When it "runs" a procedure definition it stores the name and position of each procedure then finds the end of it and proceeds to the next line.

Procedure: Media Track app

```
app_curitem=-1
dim s app_items[APP_MAXITEMS]

def proc app_register_item(i)
  if (app_curitem=APP_MAXITEMS) then error create 255,"Trying to register too ma
ny application items"
  app_curitem+=1
  app_items[app_curitem]=i
  return app_curitem
enddef

def proc app_event(e)
  local i,ok
  ffor i=app_curitem to 0 step -1
    ok=@eval("proc "+app_items[i]+"_"+e)
    if (!ok) then break
    next
  return ok
enddef

|=====================================================

def proc app_startup
  local ok=TRUE
  ok=proc app_event("init")
  if (ok) then ok=proc app_event("startup")
  if (ok) then ok=proc app_event("poststart")
  return ok
enddef

def proc app_windup
  proc app_event("windup")
enddef

|=====================================================
```

Fig II: contents of the app procedure resource

This means that we can have code in a procedure resource, which is not inside a procedure definition, and that code is actually processed and run. We could, for example, put a "print" statement at the start of every procedure resource, perhaps printing the name of the resource, and follow *S-Base* as it runs through each one.

We can use this behaviour to arrange some initialisation of variables for later use. But we can be even cleverer than that. Wherever possible I like to get things encapsulated so that they don't interfere with other parts of the application in any way; I try to arrange things so that entire segments of a program can be slotted in, copied or taken out with a minimum of effort such that the main application continues to run as if nothing much has happened.

To see how this works in *RISC OS* take a look at the way Modules operate. When they are loaded *RISC OS* assumes they have certain entry points into their code which perform things like initialisation and shutting down. A properly written module can be loaded and removed smoothly without upsetting the rest of the machine. We can do something like that with *S-Base*.

What we do is have an `app` procedure resource that looks after the registration of application items, their initialisation, sending messages to them to make them do, or check something, and to ensure smooth winding up of their operations.

This might sound complex but if done correctly actually makes things very much simpler, it just requires an understanding

of what is being done and why.

Figure II shows the entire contents of the app procedure resource, there is a lot in it but it is essentially simple. We'll take it one stage at a time.

The top two lines are executed before the main application begins to run. The first line simply sets up a variable (must be lower case and no digits allowed in the name). This is one less than the number of application items currently registered.

The second line is similar to a *BASIC* DIM statement, and defines a string array called `app_items` which has `APP_MAXITEMS` entries, also notice the use of square brackets `[ ]` unlike *BASIC's* `( )`. This is where our first constant comes into play. If we wanted more items then we adjust the constant which affects all parts of the program that use this value.

In *S-Base* all arrays are given a type, although you can define more than one array in one statement and give each one a different type: `s` is for string; `i` is for integer; `f` is for floating point; `d` is date; `t` is time; `x` means undefined and every element of the array can be of a different type (not something I've ever found useful); while finally `z` is used for structures which will be covered later.

These two lines are all we need to initialise the variables for registering and controlling application items.

Now we have a procedure called `register_app_item(i)`, notice that all keywords are in lower case and that there is a gap between `proc` and the name of the procedure, this procedure has one parameter which will be the name of the application item as a string.

In this procedure the first thing we do is check to ensure we haven't exceeded the maximum number of permitted application items, if it is too many a fatal error is generated. Otherwise we increment the number of items, store the name of the item being registered in the array and return the number we just used. The application item that is being registered can store this number in its own variable so that it has it's own identification.

In *S-Base* there is no differentiation between procedures (which don't return a value in *BASIC*) and functions (which do). It is all done by a proc, if it has a return command then it returns a value, otherwise it doesn't.

The next procedure is used to send an application event to each of the registered items in turn, and also return a value to indicate if there has been an error. A word of warning, this procedure uses a lot of programming concepts in a very compact form.

The parameter for this procedure `e` contains the name of the event to issue, it might be `init`, `windup` or something else depending on the needs of the application being written.

Firstly we create two local variables: `i` is used as a loop variable and `ok` is used to store the results.

We now have `for..next` loop, except that it's a `ffor..next` loop. In the usual for..next, if you have something like:

```
for i=1 to 0
  print i
  next
```

The loop is always executed once, with `i=1`, even though 1 is bigger than 0. To stop this you would need a while loop:

```
i=1
while (i<0)
  print i
  i=i+1
 endwhile
```

to ensure that the loop isn't executed if i is equal to or greater than 0, this is very inefficient. *S-Base* introduces the ffor..next loop which does the check first and doesn't execute the loop if the condition fails right at the start:

```
ffor i=1 to 0
  print i
  next
```

would produce no output.

So this loop won't execute if no application items have been registered, avoiding a potentially fatal crash. The other point about this loop is that it counts down rather than up, this means that the most recently registered application item always gets called first. The "oldest" gets called last.

Now we come to a particularly dense line:

```
ok = @eval("proc "+app_items
[i]+"_"+e)
```

Let's take this from the inside out. The bit inside the brackets creates a string which is the name of a proc. Let's say that i=0 and that application item zero is called `control`, and that this event is `init` asking for initialisation. The string created is:

```
proc control_init
```

Outside the brackets we have `@eval`, the first thing to know is that all built-in functions in *S-Base* start with the `@` character, so this is a function and expects to return a value. The `eval` function takes a string and executes it as if it were a piece of normal code that returns a value.

So `proc control_init` is called and executed and is expected to return a value which is finally passed to the variable `ok`. This value will be either 0 (false) if the initialisation fails or 1 (true) if it was a success.

The next line checks to see if ok is true or false, the `!` operator is a NOT function so inverts the true or falseness of the variable. If `ok` is false the result if the NOT is true so the command `break` is executed.

What break does is jump you out of whatever loop you happen to be in to the next one out. It will also break you out of a multi-line `if..endif` statement but it will not break you out of a proc, use `return` for that.

If `ok` is true you don't jump out of the loop and continue to go round running the event for each of the application items until there aren't any more, then we exit the loop.

At this stage the last result of `ok` is returned either true if there has been no problem, or false if something went wrong. Phew.

The next procedure definition `app_startup` is the entire start-up routine for the whole application, notice how simple this is. Each application item looks after its own initialisation routines, we don't have to worry about it here beyond calling the procedure that will get it done.

Very simply it calls the `init` routine in every application item, then if everything is okay it calls every `startup` routine, then it all is still well it calls every `poststart` routine. Finally it returns a value that says whether it was a successful startup or not.

The reason for three separate start-up routines is that there can be dependencies between different application items which can make it difficult to decide what order to do things in.

`init` is used for the initialisation of variables and creating arrays, and little else.

`startup` is used where some items

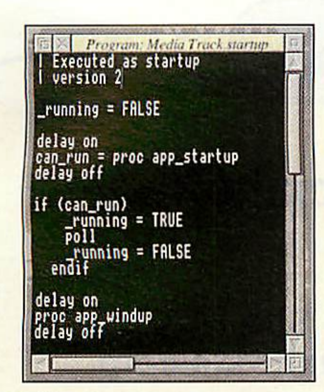


Fig III: new resource

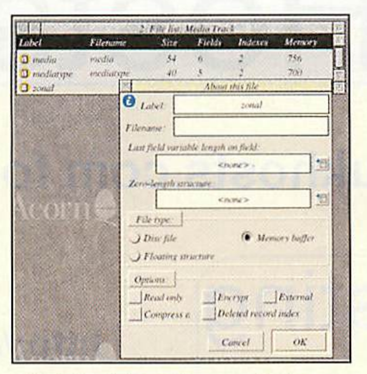


Fig IV: click on Memory Buffer



Fig VI: first block of code for control

might need to register with other items — yes, we use this registration concept in other places, it can be very useful. `poststart` is used by an item that has had other items registered with it if it needs to call special routines.

One, two or all of these could be empty in any particular application item, but they must exist as procedure definitions otherwise the program will crash.

Now that we have created this routine we can backtrack and modify the program resource `startup`. Figure III shows the new resource which makes more sense with the additions.

We set up the global variable that shows that the program is not running properly yet. Switch on the hourglass to show that there might be a wait and then execute `app_startup` to get all the bits of the program initialised and running. It returns true or false and if false we skip to the end because there was a fault.

Otherwise we set the `_running` variable to true, and start to multitask, when we finally exit we set the _running variable to false, run the `app_windup` procedure and stop.

Now you can run this and there's really not much of a change although more is going on inside. Largely because we have no application items registered.

Ultimate control

Open up the file resource because we are now going to create something completely new. Press Control+N for a new resource and call it `zonal`, when the next dialogue appears you need to do *something different* than before: Click on *Memory buffer* and then Okay (Figure IV).

You have now created a structure but there is no datafile to go with it. Open it up and create the fields shown in Figure V, you will need to create two new datatypes, `string16` and `string32` which are strings with the specified number of characters.

Now go back to the procedures resource and create the first of our new application items, this one is called `control`, the first block of code for it is shown in Figure VI.

The first line shows how this item registers itself with the main application code, and this is the only line we need outside the procedures.

In `control_init` we initialise our variables and arrays, the key line to note is the `dim` statement which uses the `z`

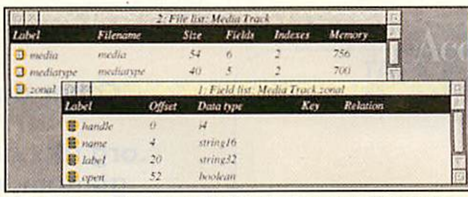


Fig V: create these fields in the new structure

option and gives `zonal` as the structure to use. What this does is create an array and each element of this array is composed of the structure `zonal` which itself contains four variables.

The `for..next` loop that follows shows how you access the fields inside the structure in each element of the array using the "." meanwhile the `@str` function is similar to the *BASIC* `STR$(` function and turns the value in brackets into a string. The `S-Base` version is much more versatile than the *BASIC* version but we don't need that versatility here.

You can see how each of the application event procedures returns the value TRUE, otherwise an error would be generated.



Fig VII: the S-Base command line window

If you save this and run it, still nothing happens apparently but there is a way we can look at what is going on.

Tracery and output

I have mentioned and shown the `print` command several times but what does it do? And where?

Get the application running and then click in any resource window. Now press F10, the *S-Base* command line will pop-up. Any standard print commands send their output to this window, also you can type in instructions here while the program is running. Try:

```
print app_curitem
```

Now try `lvar` and you get a list of procedures and variables giving their type and/or value. You can even quit the program by typing `poll exit`.

One final tip, if your *S-Base* program gets into an infinite loop – hold down both Control keys and you will exit to the command line.

Summing up

I had hoped to cover more in this article but it has been important to go over the why of what has been done to ensure you can use it and to explain how the various new *S-Base* commands work.

On the Web site this time is an application that has been taken a little bit further than we reached this time, the `control` resource has been extended and its window pops up when the program runs, so if you have *S-Base* you can download the application archive and install it in the usual way, or you can just unpack and run the archived application.

Next time we will see how to get this window up and perhaps even get away from the skeleton and start our first application-specific piece of code.

Steve Turnbull
stevet@acornuser.com

Mousing around with Logitech

It seems that *RISC OS* users just conclude that the majority of peripherals available to *Windows* users are unusable on *RISC OS.*

This simply isn't true and, thanks to Stuart Tyrrell, our friendly furry friend the mouse is now no longer a compatibility issue.

It's true that *A7000, NC, RiscStation* and *MicroDigital* computer owners have had full mouse compatibility for many years, the majority of *RISC OS* users however have *RiscPC* machines and have been limited to Acorn's proprietary mouse interface.

One thing I've realised when talking to people about our *DigiFlash* product and its use of the PS2 keyboard port for power is that many people are unaware the *A4* laptop, *RiscPC, NC* and *A7000* keyboard sockets are standard PS2!

So you've always been able to use keyboards available to PC users!

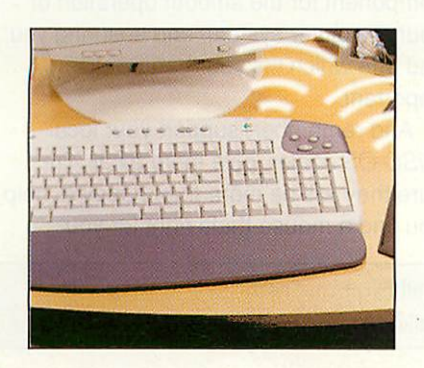
The STD PS2 Adapter

If you have any Acorn branded machine except for the *A7000* range and *NC* systems you will have Acorn's own propriety mouse connection. Mice that would normally just connect into a modern *Windows PC* cannot be plugged into this port.

Stuart Tyrrell has had a PS2 converter for some time now – however the cost was prohibitive to many and meant the dwindling stock of Acorn compatible pilot mice were still a cheaper solution even though their price has rocketed over the last year.

Now he has developed a new solution to the problem, which takes the form of two small connectors and a 10cm length of cable - his latest *PS2 Mini Adapter*. The electronics are very neatly hidden away inside one of the connectors and the whole adapter simply plugs into the back of your computer and the mouse then plugs into the adapter.

Your machine can still be pushed up against the wall, as it is just a couple of small connectors and has a small length of cable it really doesn't take up any room at all.



For the majority of installations no software, and no configuration is required, simply plug in and go, it is really that easy.

The adapter can be changed into different modes of operation, simply by holding down different combinations of mouse buttons while switching the computer on. It even has the scope for future device drivers, for instance, so the wheel on wheel mice scrolls the contents of windows. But the default configuration is suitable for most.

At under £20 the PS2 adapter from STD makes buying a replacement mouse an affordable exercise once again.

What I look for in a mouse?

Shape - Most are a uniform shape however if you are left handed ensure the mouse is shaped to be compatible with your use.

Size - Small, short, long, fat, finding a mouse compatible with your hand size is important.

Buttons - Vital, check the mouse has three distinct buttons, many mice that seem to have just two buttons also have a wheel, the wheel when pressed acts as the middle, menu button. The wheel when pressed should give a distinctive click. This isn't much of a problem today, two button mice are out of fashion, infact its all the rage now to have mice with five or more buttons.

Corded - A corded mouse has no running cost, however a cordless mouse will use batteries. Cordless mice typically have a small receiver box which can dangle behind the computer, most if not all use radio rather than infrared, the later will obviously fail to work if something gets between the mouse and the infrared receiver, taking my desk as an example its sometimes difficult finding the mouse. I'd always choose a radio-based cordless mouse.

Ball, or ball-less - Optical mice in my opinion are a must, their price has dropped and my own Optical mouse started life at *RISC OS 2000 Show*, and its never suffered from friction problems. As an example of my confidence with these mice, all the computers we supply, both new and second user are supplied with optical mice, the price difference between the two types is very small, the trouble-free operation is worth the extra expense.

The Logitech Range Groupings

Logitech offers a wide variety of mice, and trackball devices. Some are corded, others are wireless but both types have typical balls to track the movement of the mouse or the newer mice now come with optical sensors which are far more accurate and reliable than mice with dependencies on friction of the mouse ball.

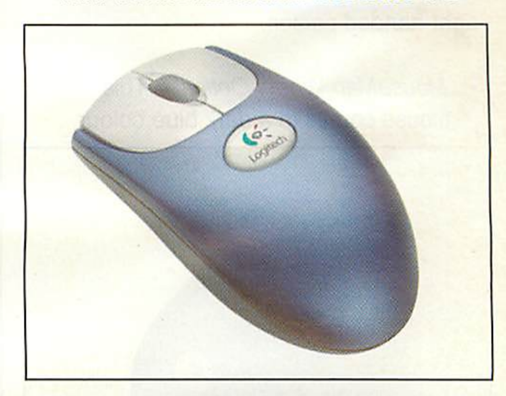
Logitech offers five distinct shapes of mouse:

Pilot

Very much like the *A7000*-style mouse supplied by Acorn, it is a medium sized mouse with two main buttons, and a wheel which acts as the third button.

Three mice are available in this range:

- *Wheel Mouse Optical* Blue in colour with a translucent dark blue base this

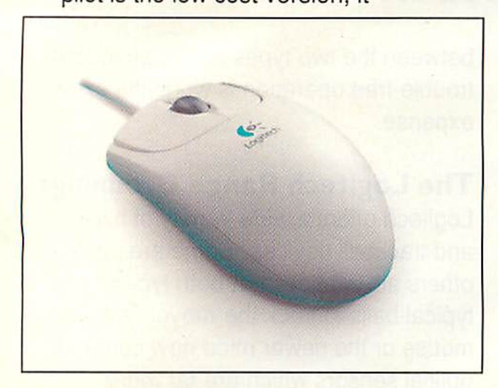


  is the mouse I have used for a couple of years now.
- *Pilot Wheel Mouse Optical* – The above mouse is a bit of a dead



  product, as the *Pilot Wheel Mouse Optical* is identical in shape, size, however is white in colour with a translucent dark grey base, but available for less money!

- *Pilot Wheel Mouse* – This model of the pilot is the low cost version, it

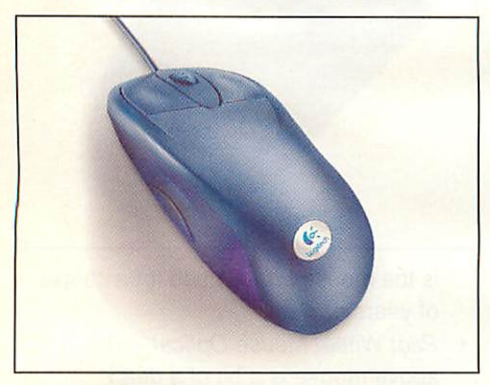


incorporates a ball rather than using optical technology, however it is the same in colour, shape and size as the *Pilot Wheel Mouse Optical* apart from not having a translucent base.

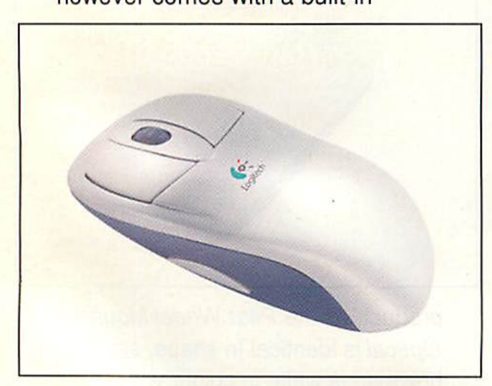
MouseMan

The *MouseMan* is a new-style mouse – it was the chosen mouse for the ill-fated *RiscPC 2 Phoebe* machine, many will remember the prototypes being demonstrated with an oddly angled mouse with one high side. The latest generation *MouseMan* is a bit more subtle and rounded. It is still higher on the left-hand side and so is more suited to a right-handed person.

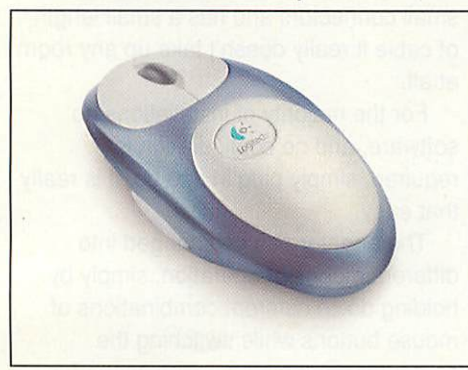
- *MouseMan Wheel Optical* – This mouse comes in a dark blue colour



and incorporates an optical sensor.
- *Cordless MouseMan* – As above, however comes with a built-in



transmitter rather than being restricted by a cable. For a few pounds more however you can have the *Cordless MouseMan Optical*...
- *Cordless MouseMan Optical* – This mouse is a far better buy than its

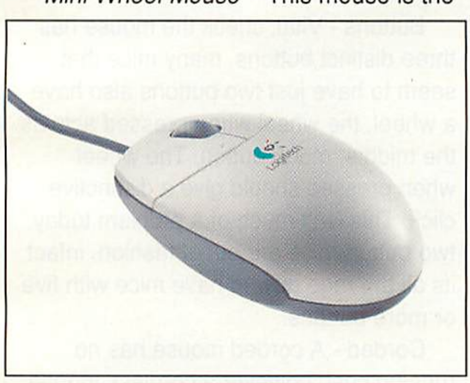


lesser sibling the *Cordless MouseMan* as for just a couple of pounds extra you get an optical sensor instead of a wheel. The only negative point I can think of is that it will most likely go through batteries faster, but I think that's a small price to pay to gain a friction problem-free mouse!

Mini

The *Mini* mouse shape is a smaller version of the *Pilot*, ideal for small hands or children.

- *Mini Wheel Mouse* – This mouse is the



only one available in the mini style, it is corded and features a ball.

TrackMan

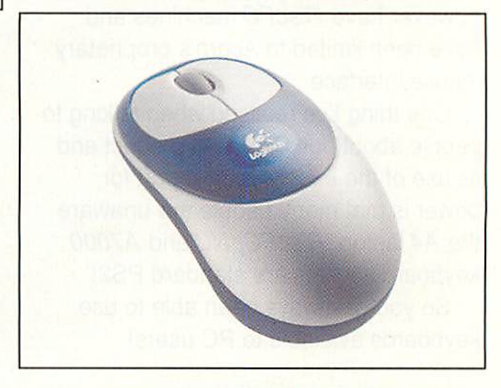
This is Logitech's fixed position trackball device, hard to describe, it's a mix between the old-style *MouseMan*, ramped higher on the left hand side, however it curves around the ball. Allowing your hand to fit snugly round the device, allowing your thumb to operate the ball and fingers to operate the mouse buttons without lifting or adjusting your hand.

- *Cordless TrackMan Wheel* - I'm a bit confused as to why you would want a stationery mouse to be cordless, after all if you're not moving it often why is the cable a problem? Personally I'd find replacing the batteries periodically more frustrating. Odd.

Cordless

This mouse design is much like the *Pilot*, however it is longer – I'm used to my fingers falling over the front of the mouse buttons. However with *the cordless* mouse design the buttons finish before the front of the mouse which felt a little odd at first.

- *Cordless Optical Mouse* - Recently launched, this mouse is a superb



addition to the Logitech range. Dark blue in colour, with a dark translucent blue base this mouse is like the *MouseMan Cordless Optical*, however better suited to left-handed people.

Final Words

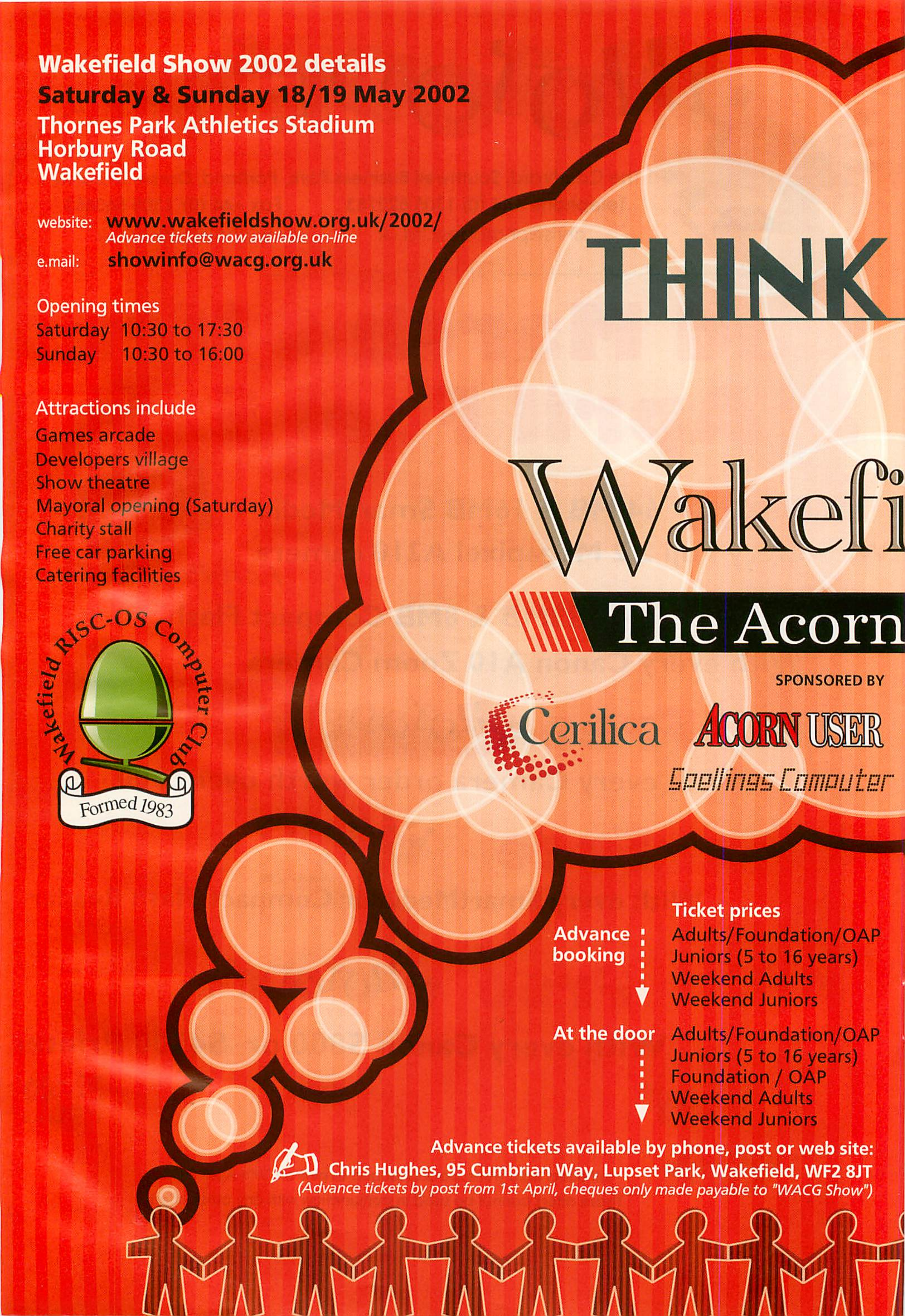
Over the last couple of years, the optical technology in my mouse has been excellent. I've never once had a problem with moving the pointer around my screen, the days of me cursing my *RiscPC* mouse have long gone.

The Logitech range starts at £15.99 with the basic *Pilot Wheel Mouse*, and the *Pilot Wheel Mouse Optical* has a suggested retail price of £24.99. The cordless units have a suggested selling price of £49.99, but trust me, it's money well spent two months after the purchase and you realise you have had trouble-free use over that time!

I've covered Logitech, however there are many other brands of PS2 mice available. A mouse is a very important component for the smooth operation of your computer system, and ensuring you find one which fits your hand well is important.

And remember, support your local *RISC OS* dealer, give them a call, I'm sure they will be more than happy to help you find a mouse thats right for you.

Neil Farnham-Smith
neil@farnham.tv



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Whose desktop is it this month?

Did you work out who the owner of last month's desktop was? It belonged to none other than *The* Paul Vigay, *RISC OS* programmer and *Acorn User* contributor.

This month's mystery desktop is well populated with windows and applications. This person prefers all his favourite programs to be loaded when the machine starts. Other useful applications and utilities are available through the pinboard or *EasiFiler*.

More than twelve items have had to be blurred as this user is very personal and has had his name or names that would easily reveal his identity removed. He is known by friends and family as the most tidy person in town and insists on everything having its rightful place.

Nothing is put on the root of the hard disc for long: it gets moved to its folder or gets installed if it's an application recently downloaded with *Oregano*.

Messenger Pro is loaded and receives post from 7 newsgroups, 13 mailing lists and 7 e-mail accounts. This person uses *RISC OS* solely as a means of accessing the Internet. 4871 messages are currently in the safeguard of *Messenger* – the user doesn't know where he'd be if it weren't for such an excellent program.

The machine is a *StrongARM RiscPC600* with the latest rendition of *Select*.The iconbar shows two hard discs: 'Back Up' and 'Hard Disc'. 'Back Up' holds the user's entire MP3 collection and 2 weeks worth of backups of the user's main hard disc. Backing up is done via the user's own backup program which shall remain anonymous because it would give the game away. 'Hard Disc' holds all the programs and files of the user. There are 16 icons in the root directory, all with different icons so the user can easily find their way around.

As mentioned above, the user uses *RISC OS* for Internet access. There are many Internet-releated applications loaded: *Oregano* from Castle, *Messenger Pro* from R-Comp, *MSN* by Philip Hardy, *ForeCast* by the amazing Justin Fletcher, Colin Granville's *FTPc* and finally *WebGet* by Joseph Heemen. The first two applications are well known and are used by many Acorn users. *MSN* is an excellent *MSN Messenger* client for *RISC OS* and *ForeCast* downloads images from European and world satellites and displays them.

WebGet is loaded for downloading a whole Web site onto the users hard disc. The users other main interest is music. Let me rephrase. The user is a fanatic of all things music! The *StrongARM* machine also has a MIDI podule installed in it. The user's second most used application must be AMPlayer because, with a MP3 collection of 441 files, music is permanently blasting out from this machine!

The most striking thing about the screenshot is *Oregano* and the main page of *RTE*, Radio1's Web site. When the user isn't busy playing music one of the two radios in this room is tuned into Radio1.

This user maintains several Web sites. All his Web sites were written using *Zap* and tested with *Validator*. The user uploads his Web sites with *FTPc* and the powerful *SiteMatch* by David Edwards. *SiteMatch* shows what has changed on a Web site since the last upload and generates scripts for *FTPc*.

AMPlayer is actually the user's third most-used application. For the last few years two applications have never been separated and fill positions #1 and 2. These two gems are *Zap* and John Kortink's *Translatr*. This user can't honestly remember when he used *Edit* last and has tied all copies of *StrongED* to a big pole and lit them as a sarcrafice to the gods. *Zap* is as important as the mouse or the keyboard. *Translatr* can view almost any image available and it was used to blur details in the two screenshots.

A program called *Today* by James Miskin (dated mid-1995) is loaded. Today displays all the important happenings on any given day. Very useful program. The pinboard is arranged so that the most used applications are at the very edges and the really important ones such as *SparkPlug* and *ArcFS* are at the bottom. It's also designed so the 'digitalblasphemy.com' text doesn't hit any of the icons.

You may have noticed there is a program that sits on the very top of the screen. The program's name is *Clocker* and it displays world-wide times as well as standard times and Internet Time. The program will only work in a 1280x1024 screen though as that's how the author designed it.

Between the floppy disc icon and the *Printers* icon there is *EasiFiler* (or more what's left of it!). *EasiFiler* is a application launcher. It hold 16 applications in big squares and it has shortcuts to folders in !Boot too. This user doesn't know how he would cope without *EasiFiler*.

The user in question can actually program, in *BASIC* and *C* as well as others. Some of the user's programs have been released but many lie in the 'Programs.Private' directory. Once again *Zap* is the main tool of the user's development enviroment.

All of the 441 MP3's in the music collection were encoded by the excellent *Shine* MP3 encoder. Add this to *AMPlayer* and you get a powerful MP3 package.

In the music collection reside artists such as Pavaroitti, Barrington Pheloung, Abba, Bocelli, Celine Dion, Elvis, Gabrielle, Meat Loaf, Queen, Rod Stewart, the Beatles and U2. There's not many clues in that list, a mixture of all sorts.

Do you know the owner of this month's desktop? Find out in the next issue.



A busy desktop for a busy programmer

The latest education news

With Science Year in full flow, this month's column is dedicated to educational news with a scientific bent ...

Art for science's sake

Head on: Art with the Brain in Mind is a new interactive exhibition created through a collaboration between the Science Museum in London and the Wellcome Trust and in association with the European Dana Alliance for the Brain. The Exhibition features insights into the relationship between art and science through sculpture, painting and other installations. Well-known work such as David Hockney's *Camera Obscura* sit alongside specially commissioned collaborations between artists and high profile scientists such as the Director of the Royal Institute, Professor Susan Greenfield.

The exhibition opened runs until to 28 July 2002 and the new gallery space is a permanent area hosting temporary exhibitions relating to art and science, *Head on* is the first in this series.

Adding value

More National Curriculum resource packs from Softease (01335 343421) this month. *Life Processes and Living Things* is aimed at Key Stage 2 scientists. The aim is to link practical experience with scientific ideas and the use of ICT. The resources themselves combine text, graphics, sounds, animations and video designed to motivate pupils. The CD-ROM allows teachers and children to use the resources in their own work and costs £29 each for a site licence.

The science of life

The Life Sciences Portal – **www.bio.com** – is a good starting point for anyone looking for news and research details. As well as giving a brief breakdown of research, from the muscle gene influencing fat storage to information from tree rings linking rainfall and epidemics that decimated the native population of Mexico, there is a web link to find the full details.

In addition you can access webcasts on topics such as Advances in DNA and RNA Diagnostics hearing them live on the web site or you can opt to view a PDF transcript.

In addition **Bio.com** offers an online Career Center in the life sciences industry, market research, plus reviews of software.

Going for a song

Welsh schools are being invited to get involved in a survey of the local song thrush population. Song thrushes have been in sharp decline since the 1970s, and Wrexham Biodiversity Group are keen to monitor the current situation. If you're not sure what a song thrush looks like visit **www.garden-birds.co.uk**
If you'd like to be involved, they ask that you send your sightings, or requests for more information to Emily Meilleur of the Wrexham Biodiversity Group at **emily.meilleur@wrexham.gov.uk**

Supermarket science

ASDA and Marks & Spencer are both involved in Science Year. ASDA has unveiled Big Science which is a year-long initiative to make educational and interactive links to classroom-based learning and real life skills. Most schools will have heard already from their local ASDAs and you can find out more at **www.asda.com**

There are trails around their stores based on four themes: Clothing and Washing, Hair and Beauty, Micro-Organisms, and Fruit and Vegetables. These have been divided into levels, for various age groups and SEN pupils. There are also teachers' notes, and they've even prepared a parental leaflet for participating schools and online there are experiments and teaching resources.

Meanwhile M&S are presenting Are you what you eat? Aimed at secondary schools it is concerned with food and health and takes the form of a survey, with there's a free resource pack including activity cards, information sheets, teachers notes, posters and of course the 'Are you what you eat?' questionnaire. For more details ring 01634 729833 or visit **www.marksandspencer.com/ schoolsciencesurvey**

Get coloured

Did you know that the National Physical Laboratory has developed an online experiment to encourage schools, to take part in practical science and at the same time help them with their research? Testing human reaction time, how humans perceive colour and how to use a shadow stick to find your latitude and longitude, the results will be fed directly into an NPL scientific paper and should your school produce the most accurate determination of your position as part of the shadow stick experiment, you will win a cash prize of £500.

There are runners up prizes of £350 and £150 too! Find out what to do by popping along to: **www.npl.co.uk/ scienceyear**. The winners will be announced and the prizes presented on World Metrology Day, Monday 20th May.

Science Year offers activities online and off and you can find out the latest information by joining the mailing list: **Scienceyear@mailing-list.scienceyear.com**

Summer exhibitionists

THE Royal Society's Summer Science Exhibition – **www.royalsoc. ac.uk/education** – will soon be upon us. Twenty leading researchers will be convening in London to present their work at the Exhibition, offering a mixture of cutting-edge science and multi-media displays. A great opportunity for 16-19 year old students to find out what's really happening at the forefront of the science subjects they are studying.

Chemistry, Biology, Physics and IT are all represented in the work of the research teams. Free, high-quality resources will accompany the exhibition enabling to allow teachers and students to undertake preparatory work, and follow up anything if interest after the exhibition. If you're not sure if this is for you, check out last year's exhibition at: **www.sc1.ac.uk**

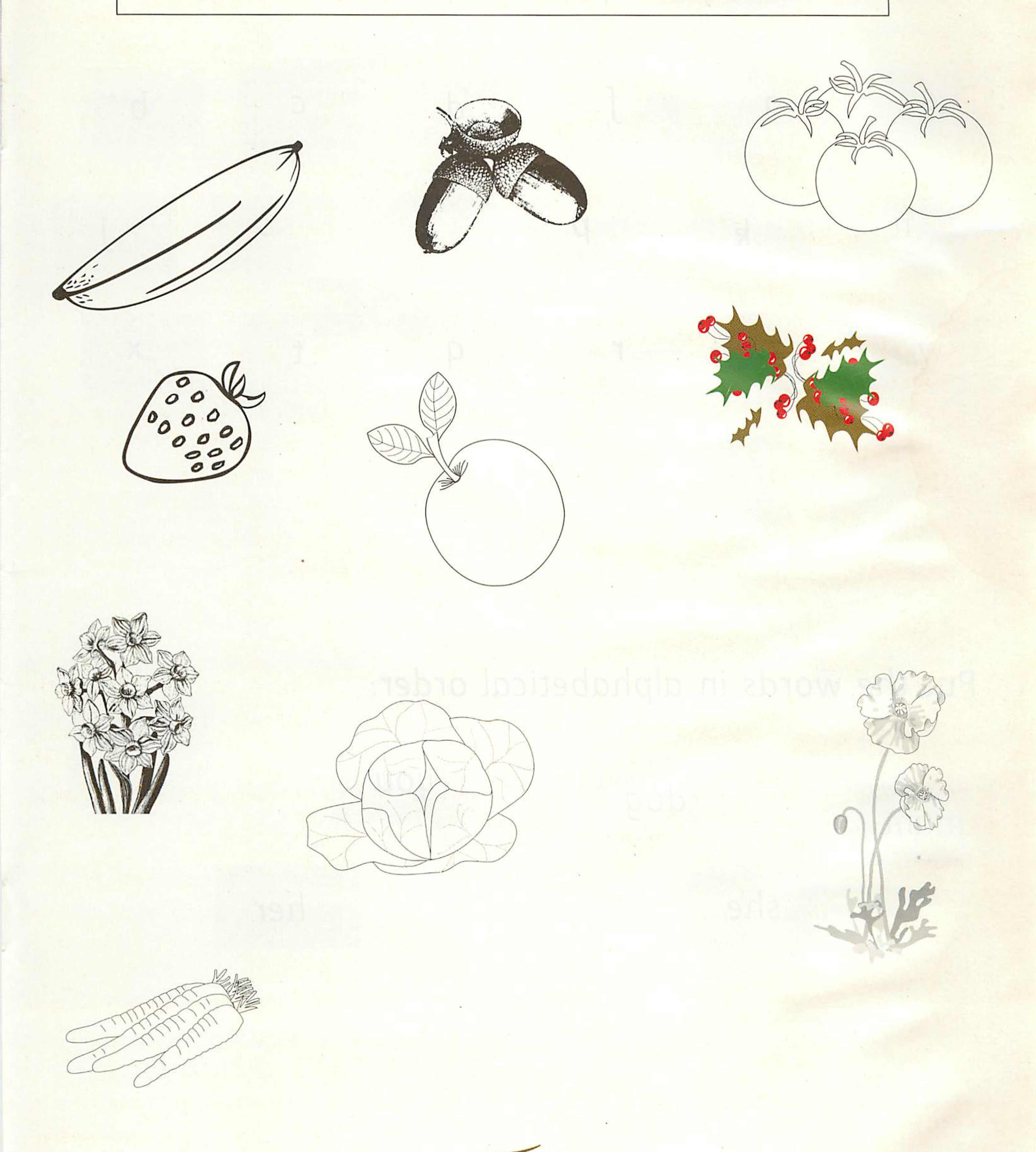
On your marks...

The EPSRC Science Race is up and running and you can find out more at **www.epsrc-sciencerace.net** The Science Race has been going for several years now, but this year there's a new aspect to it – an online science-based Treasure Hunt that will take you to the four corners of cyberspace...

This month we have a *ROSES* Education special. The *ROSES* Web site at **roses.jellybaby.net** is a resource of free worksheets and *RISC OS* software for education use. This month we are printing two samples from the KS1 resources which you may photocopy freely. Find out more on the *ROSES* Web site.

Pam Turnbull
educ@acornuser.com

Some plants grow to give us food.
Draw a circle round those we can eat.



Name

Put the letters in alphabetical order.

g	a	f	d	c	b
n	k	p	l	s	j
w	z	r	q	t	x

Put the words in alphabetical order.

boy

you

dog

mum

she

her

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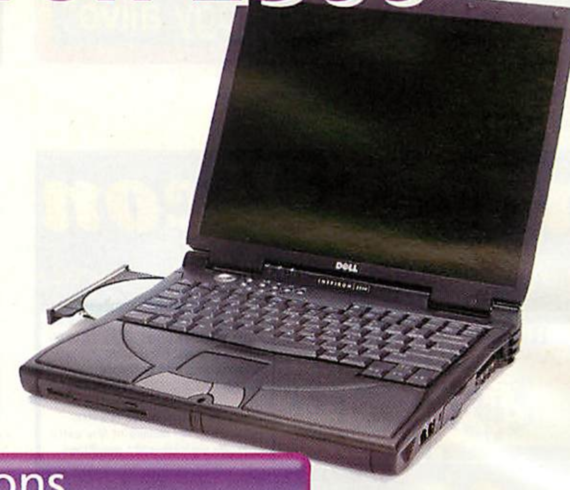
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Latitude C800 from CD ROM to CDRW £128
Latitude C800 from CD ROM to DVD/CDRW Combo .. £224

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Inspiron Internet Modem and 10/100MB Network Card £45

Software
Windows ME or Windows XP Home to Windows 2000 . £75

Peripherals
Espon 1250 Perfection Scanner £79



The EPSON Perfection 1250 is a high specification A4 scanner with a true optical resolution of 1200 x 2400dpi, fast scanning speeds and 48 bit per pixel colour depth for accurate colour reproduction, gives you outstanding result. It is extremely easy to set up and use. The USB interface enables Plug & Play and is bundled with a variety of software, including the new ArcSoft PhotoImpression 3 for image manipulation, and Presto OCR for converting text documents.

HP 845C Inkjet Printer £79



The HP 845C Inkjet printer gives you up to 600 x 1200 dpi resolution which means excellent color and rich black text. USB connectivity for PC and Mac. Speeds are 8 PPM in black and 5 PPM in colour. Paper tray takes 100 pages.

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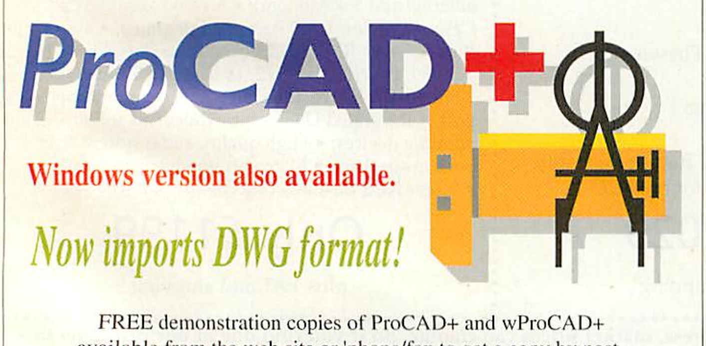
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SURREY



The advertisers index is on page 66

Problems solved at Kinetic speed

This month, we have a Hints & Tips special, concentrating on Castle's *Kinetic* upgrade card.

The *Kinetic* card offers the fastest *RISC OS* speeds currently available. However, you may come across some problems along the way, so here we give you the low-down on how to solve the most common problems users have experienced.

After this month, *Hints & Tips* is changing radically. See the box on the opposite page for further information.

Memory: RiscPC reports that there is 4Mb less memory than is actually installed.

So that *RISC OS* itself runs at *Kinetic* speed, *RISC OS* is transferred into the *Kinetic's* fast SDRAM on startup. This 4Mb of memory is not user accessible, so is not included in the reported total.

PC card: fails to allocate memory.

This is an issue with the *RISC OS 4.03* shipped with *Kinetic* cards. (Later *Kinetics* ship with *RISC OS 4.04* which has this issue resolved). Please download the *memfix* module from the Castle Web site at **www.castle.uk.co/Link/memfix.htm** and place it in your *!Boot.Choices. boot.predesk* folder.

This repairs a fault in the *RISC OS 4.03's* memory allocation SWI called by the PC card software.

PC card: allocates memory but fails to boot.

You will need to be running *PCPro* v3.06. If you are not yet running this version, please contact Aleph1.

PC card: Fails to boot fully, but the original StrongARM boots it OK.

A diagnostic sequence is useful. You will need to try various options to ascertain what needs to be done. Castle are confident there are no software incompatibilities between the *Kinetic's RISC OS 4.03*, with *memfix 0.11*, (or *RISC OS 4.04*) and *PCPro 3.06*. Any failure to operate is down to hardware.

1. Try the *Kinetic* as a simple *StrongARM* card. Place a jumper on the third pair of pins from the left, at the top, of the *Kinetic* card, as viewed from the computer front. This will disable the extended features of the *Kinetic*. (If you have a *Kinetic* installation with flash ROMs on the rear of the *Kinetic card*, with no ROMs on the *RiscPC* motherboard this will fail. In this case, an equivalent test can be achieved by removing the SDRAM module from the *Kinetic* card.)

In the unlikely event that the PC card boots in this mode, but not in full *Kinetic* mode, please contact Castle.

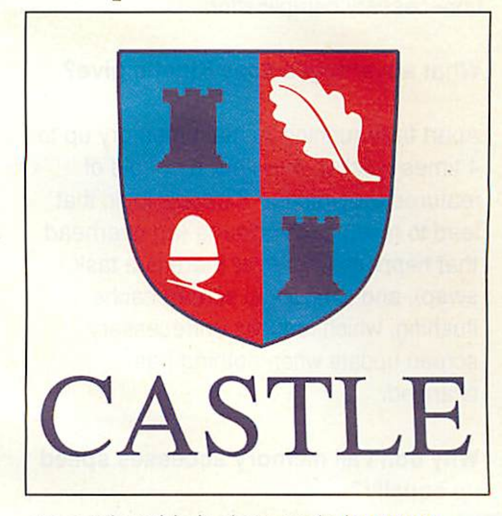
2. Check your VRAM.. cards with Samsung *KM428C256T* chips will frequently stop the PC card. Try booting with the VRAM absent. If the PC card boots successfully with the VRAM absent, it is probably that a replacement VRAM is required. These are available from Castle and other good suppliers.

3. Try any mix and match of motherboard RAM present, which socket(s) its in, and with VRAM present or absent. If the PC card boots with a particular RAM absent, then it is most probably necessary to remove or replace that particular RAM. If the PC card won't boot with any option, please check if the *C32* chip is still in place on your motherboard. See the photograph bottom-left of this page in order to locate *C32*.

C32 may need removing

4. If *C32* is present, and you feel competent to remove it, then do so, but remember this is done entirely at your own risk. If you prefer not to do this yourself, you should contact Castle or any competent repairer.

If after removing *C32* you have no success, having repeated the three steps above, then again please contact Castle.



5. If all the rest fails, and the *Kinetic* machine still freezes a second or two after the PC card software has turned the PC screen black, it will be necessary to add a resistor, *R73*, value 220 ohms, to the rear of the *Kinetic* close to the configuration pins (*R73* is not normally fitted during production).

If you feel competent to install *R73*, then do so, but again you do this entirely at your own risk. You will probably prefer to contact Castle or a competent repairer instead, either of whom can carry out the work professionally.

In the unlikely event that you still have a non-working PC card after all this, then again please contact Castle.

Why does DMA not work?

The DMA Manager will only permit a DMA transfer if the source/destination memory is in motherboard RAM. As most RAM you use is in the *Kinetic's* SDRAM, DMA is usually not possible.

Why was the DMA Manager not rewritten to work better?

It is possible that the DMA Manager could be extended to create temporary buffers in motherboard RAM, DMA to and from these, and copy between these and the intended place in SDRAM.

The performance hit would drop a card capable of transferring at 4+ MB/sec down to less than 2 MB/sec. As the cards

that Castle had all operated at around 2 MB/sec non-DMA, this seemed an unnecessary complication.

What advantages does Kinetic give?

Apart from running its main memory up to 4 times quicker, there are a couple of features built into the *Kinetic's* logic that lead to faster cache cleans (an overhead that happens whenever there is a task swap), and conditional screen cache flushing, which reduces unnecessary screen update when nothing has changed.

Why don't all memory accesses speed up equally?

This is complicated:

The memory on the motherboard is controlled by the IOMD chip. Whilst this is clocked at 64MHz, and has a 32MHz state machine, it operates the DRAM with a 16MHz clock (i.e. 32MHz / 2).

Data Read into the StrongARM is read optimally as an 8 word burst to fill 1 cache line. *IOMD* fetches this from DRAM with a 2.5-1-1-1-1-1-1-1 clock sequence.. i.e. 9.5 cycles of 16MHz (593.8nS) for 32 bytes.

Data Write from the *StrongARM* is optimally written with a 2.5-1-1-1-1-1-1-1.5 clock sequence. i.e. 10 cycles of 16MHz (625nS) for 32 bytes.

For the *Kinetic* reading SDRAM, data is optimally read with a 7-1-1-1-1-1-1-1 clock sequence. i.e. 14 cycles at 66MHz (212.1nS) for 32 bytes.

For the *Kinetic* writing to SDRAM, data is optimally written with a 5-1-1-1-1-1-1-1 clock sequence. i.e. 12 cycles at 66MHz (181.8nS) for 32 bytes..

This shows that *Kinetic* has a burst read time that is optimally 2.8 times faster, and a write time optimally 3.4 times faster.

This speed increase is not seen to the limit as there is a 1 cycle sync delay (max) whenever the *Kinetic* swaps from internal to motherboard access, or back again.

Additionally display VRAM, *sound* RAM and other IO are on the motherboard, so all accesses to these are at the slower rate.

NetBSD/arm32: NetBSD will not boot.

The *NetBSD/arm32* bootloader requires the memfix module to be installed otherwise *NetBSD* will not boot.

The Editor extends grateful thanks to John Ballance at Castle Technology Ltd for providing the information in this article.

Hints & Tips Discussion Group

Hints & Tips (formerly *Rambles*) has undergone a radical change.

We are abandoning the traditional method of sending in queries to one resident expert and opening up the process for all to offer their help and knowledge on queries sent in. But how can this possibly work? The answer is that *Hints & Tips* is going online!

Thanks to SmartGroups, *Hints & Tips* has been transformed into an online discussion group. To join in , you just need to subscribe to the group and then you will be able to post both queries and answers. Each month, we will print highlights from this discussion group for the benefit of all readers.

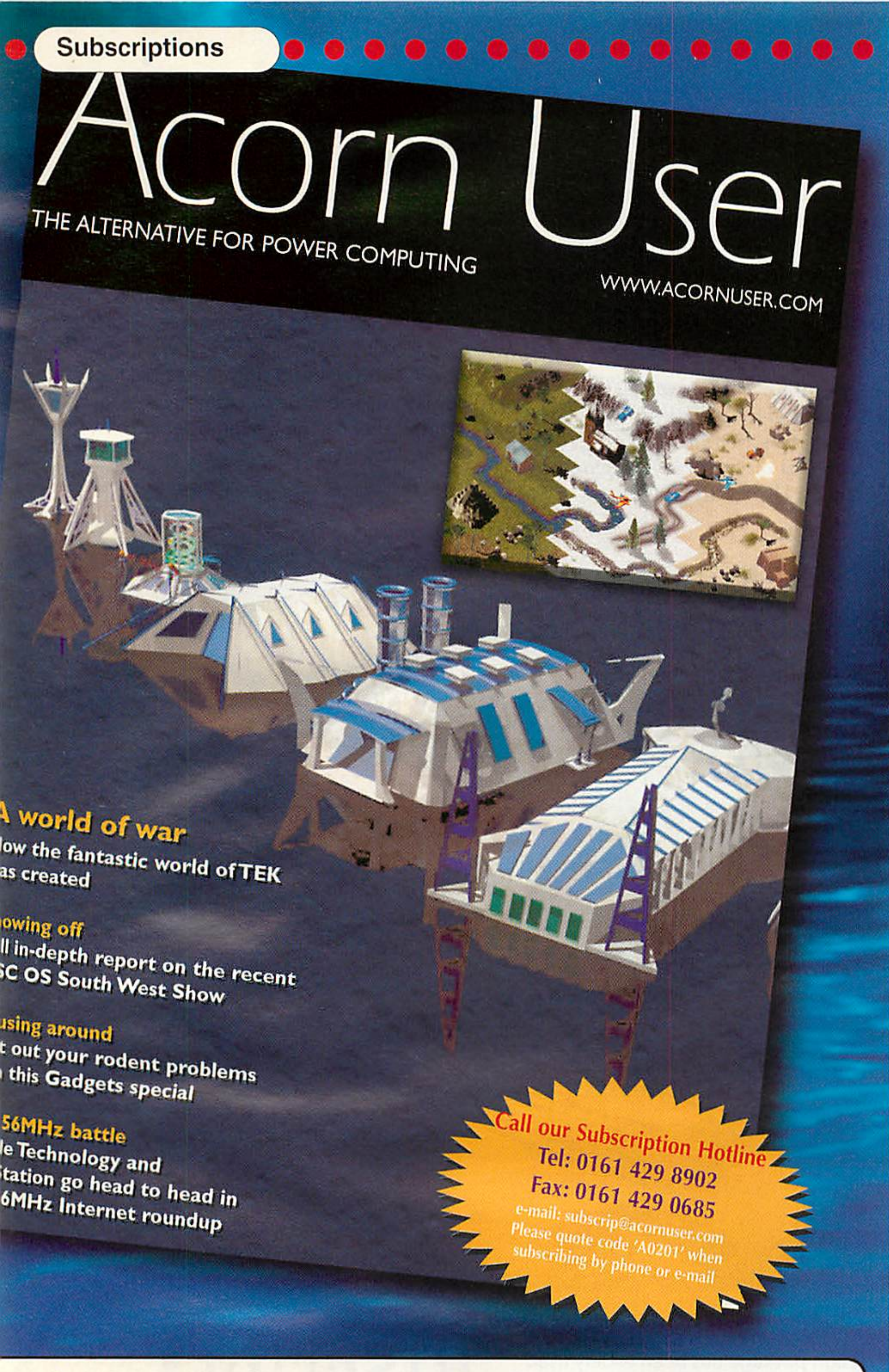
If you are not connected to the Internet, you can still send in queries by e-mailing the Editor, stating your query and asking for it to be posted to the discussion group.

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Please note: this discussion group is only for discussion relating directly to the operation of *RISC OS* computers, both hardware and software. We welcome discussion and queries on basic operation through to programming issues. However, the group is not a forum for criticism of the magazine, *RISC OS* companies or individuals.



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- Viewfinder 2 reviewed
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Issue 243
Feb 2002

- Re-launch and re-design issue
- Odyssey Internet reviewed
- Insignia review
- BETT Review
- S-Base tutorial continued

Issue 242
Jan 2002

- Digital cameras from Fuji
- Digital cameras from Olympus
- BETT Preview part 2
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Issue 241
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- Retro-gaming with Repton
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- RISC OS 2001 Show Guide
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- Digital Video Editing & RISC OS
- Review: TextEase Presenter
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Omega worth the wait?

Dear Sir,

I have very mixed feelings as I write this letter to you. On the one hand, I am absolutely delighted now that I have finally upgraded to *RISC OS 4*, a 40 Gb hard disc, and more memory. On the other hand, I am disappointed that I will never be the owner of a Microdigital *Omega*.

I have in front of me the current Microdigital Web site news page. It is dated 30 November and states 'More information next week plus some really good news for Christmas'. I am writing this in late February!

When the two deadlines above had passed, I sent an e-mail to Microdigital asking them if it was time to cancel my order for an *Omega* and have my *RiscPC* upgraded. Three weeks later they had not replied. I believe the absence of a reply told me far more than a reply would have done, and I went ahead and had the upgrade done.

In fact, I find the absence of a reply absolutely astonishing. My e-mail was politely worded, but made it clear that if they did not provide me with any reassurance they were going to lose a £1000+ sale. If this is the way they treat people before they've got their money, what kind of after sales service could I expect if they ever did produce an *Omega*?

I regret the year I spent waiting for a non-existent computer. I wish I had upgraded to *RISC OS 4* a long time ago – for those of you who haven't yet upgraded, I would recommend you do so.

On the plus side, I can spend the rest of the *Omega* money on other *RISC OS* products. My children have been constantly pestering me about a scanner – I told them to wait till we had the *Omega*, so we could have a scanner with a USB connection. I have now bought a scanner (from a *RISC OS* dealer, naturally) and regret that I have kept them waiting so long for it.

I wish Castle well with the *Kinetic* - I will not be buying, as it looks too much like an upgraded model of the computer I already own – and I wish RiscStation well with their portable and the Evolution (my next *RISC OS* computer?). I hope these two companies have not suffered too much from people waiting for the *Omega*. As for Microdigital, I believe they have done more harm to the *RISC OS* market in one year than Microsoft could manage in ten. When PC users have expressed surprise that I still use an Acorn I have always told them that, although Acorn packed in making computers some years ago, there are three computers still making them. From now on I will be telling them there are two – I no longer acknowledge the existence of a company called Microdigital.

Mark Syder
via e-mail

I am glad to hear of your successful upgrade to RISC OS 4. It is a worthy upgrade offering many benefits.

The Kinetic RiscPC is an upgraded version of the RiscPC. Indeed, you can buy the Kinetic card to upgrade any RiscPC. Users who do not have a StrongARM or who want RISC OS 4 and more memory will find the Kinetic card to be a very worthy upgrade. Certainly if you already have a RiscPC, you would not buy a brand new Kinetic machine, but instead just buy the upgrade card.

Dear Sir,

I am sure I am not alone in thinking that the *RISC OS* market is at the moment in a vacuum and has been for a while. I am but a humble user of the platform, and probably like many others find the inadequacies of *RISC OS* a bind. I feel frustrated by the none appearance of anything to update the shortfall in software provided for what can be now considered the most basic properties of a computer: the ability to access the Internet reliably, and print images at the quality a modern printer specifies it can do.

It can only be a dream that *RISC OS*, even if it is a much more friendly platform to use, will be anything more than a computer found in fewer and fewer homes.

The long delayed arrival of the *Omega* and the more obvious lack of any real take up of *RISC OS* by other than cut-down versions for POS displays, gives me rather more than concern that the market is exponentially decaying.

It's no good shouting about *RISC OS* being less susceptible to e-mail virus, because while it's a temporary catastrophe for those that get hit, they know of no alternative (*RISC OS* if advertised is not an alternative). It's no good shouting that the platform boots up quicker than *Windows* as they are not bothered.

I can readily and convincingly demonstrate to friends that *Vantage* and *OvationPro* as well as a number of other utilities on *RISC OS* are far more friendly to use than their Windows versions, but they continue to use their PC quite adequately and adeptly.

So, what is the strategy for creating new users of the *RISC OS* platform?

Perhaps someone could inform *Acorn User* readers what can be done. Or is it really far far too late and we are now on the last gasp of air?

Phil Coates
via e-mail

Quite to the contrary, when I demonstrate to PC-using friends just how quickly RISC OS boots up and how responsive it is, they are very impressed. They are even more impressed when I tell them the MHz of the processor and the age of the original RiscPC design. One friend in particular (who is Greek and had never heard of anything but Windows and MacOS before) says she should have bought an Acorn instead of the 800MHz Windows box she now puts up with. After she has seen how efficient and reliable RISC OS is, she wants to change over.

I see no reason why RISC OS cannot expand rather than contact. when we do get 32bit RISC OS and the great new hardware to go with it, this will give something for companies to market to home users. The better policy seems to be aiming at businesses and enthusiasts at the moment.

With the RiscStation laptop imminent, the new neuron developments from Castle and major new software such as Vantage appearing on the scene, I would say the RISC OS scene is not on it's last legs and that there is a perfectly viable future ahead. I am quite sure, for example, that Cerilica did not write Vantage for a market with nothing left in it.

RISC OS sells on it's merits, which are reliability, efficiency and speed. And of course, it's graphical user interface. It doesn't sell on numbers as Windows systems do. The fact that a 56MHz RISC OS system is still a viable machine for

modern use speaks volumes about the relative speed and efficiency of the existing systems. Even a 166MHz Windows box would be beyond use for most people these days, but 56MHz RISC OS machines are still rolling off the production lines.

I would point out that the continued Omega delays do not say anything about the RISC OS market. That is merely one company failing to deliver.

Dear Sir,

I read with interest the letter from Eric Dobson regarding his unpleasant experience with his *Kinetic RiscPC* from Castle. This emphasises the point that the *RISC OS* platform is not up to scratch when it comes to the provision of Internet access.

Whether Mr Dobson misunderstood what he was being told, or the seller blatently ignored informing Mr Dobson of the potential shortcomings of his purchase has no discussion. The seller here is Castle and with their vast experience, I am sure they will not have misunderstood what Mr Dobson wished his computer to do.

To be sold a machine which immediately requires upgrades (as suggested by Castle and the *Acorn User* Editor) to fulfil the duties for which it was purchased seems ludicrous.

Phil Coates
via e-mail

I am sure there are many who will agree that RISC OS is "not up to scratch" when it comes to Internet software, but that is a rather scathing and unfair statement to make.

It is perfectly true that we do not have the latest bells and whistles as regards the latest browsing technology and currently we do not have, for example, a working ICQ client. However, this is not unique to RISC OS. I think it is fair to say that any alternative platform to Windows suffers from being behind Windows when it comes to the Internet. Windows is the biggest market so things happen there first.

If you really want the very latest Internet technology straight-away and free of charge, then you simply need to use Windows. Many RISC OS users, myself included, do not find RISC OS particularly lacking for Internet use. We have a great Web browser in Oregano, excellent IRC facilities and some truly impressive e-mail clients.

The Kinetic RiscPC does not require upgrades to do what it is sold to do. As supplied, Castle machines let you browse the Internet and send and receive e-mail. They are supplied with software for document creation which can also read Microsoft word files although quite obviously full compatibility could not be guaranteed.

If you want the full commercial versions of the software and the support that goes with them, you have to pay for them. Castle do not sell machines under false pretences.

Is the RiscPC a suitable Internet machine?

Dear Sir,

The *RISC OS* world has a great opportunity to promote itself at the forthcoming *Commonwealth Games* in Manchester. Given that most RISC OS users are from the Commonwealth countries, why is there not a promotion/stand or Manchester Acorn users group meeting during the Games period?

The prospect of the solar laptop being seen by the African nations offers a golden opportunity. Has anyone seriously looked at athletic result recording with Acorn?

There is one man who wrote a program. I met him at the *British Veterans Athletics Champs* last year at Eton, but he had done it for self use only. We need programs for converting results in decathlon/heptathlon and the veteran multi events, which work on age graded tables, Think of the possibilities of 'working in the field' with a good *RISC OS* laptop.

This is an opportunity for all developers in the *RISC OS* field. How often do you have such an opportunity to promote a great system which most of the world knows nothing about? Show 'em, woo 'em, win 'em. Gold for *RISC OS*!

Margery Swinton Stirling

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KONICA KD300	£388	£406	£416
MINOLTA 2300	£215	£229	£233
MINOLTA E201	£208	£222	£226
MINOLTA E203	£218	£236	£246
MINOLTA Dimâge 5	£508	£522	£526
MINOLTA Dimâge 7	£718	£732	£736
MINOLTA Dimâge X	£348	£362	£366
MINOLTA S304	£338	£352	£356
MINOLTA S404	see website	see website	see website
NIKON Coolpix 775	£270	£277	£281
NIKON Coolpix 885	£458	£472	£476
NIKON Coolpix 995	£585	£599	£604
NIKON Coolpix 995 Premier	£675	£689	£693
NIKON Coolpix 5000	£888	£902	£906
OLYMPUS C1	£158	£166	£171
OLYMPUS C1 Zoom +FREE Case	£198	£206	£271
OLYMPUS C40	£528	£536	£541
OLYMPUS C200	£298	£306	£311
OLYMPUS C700	£398	£406	£411
OLYMPUS 2040 +FREE Leather Case	£348	£356	£361
OLYMPUS 3020 +FREE Leather Case	£425	£433	£440
OLYMPUS 4040 +FREE Leather Case	£578	£586	£591
PENTAX EI100	£168	£182	£186
PENTAX EI200	£388	£402	£406
PENTAX Optio 330	£448	£462	£466
PENTAX Optio 440	£618	£632	£636
RICOH RDC7	£388	£396	£402
RICOH RDCi500	£518	£532	£536
RICOH Caplio RR10	£298	£316	£326
RICOH Caplio RR1	£548	£556	£562
SONY DSC S85	£618	see website	see website
SONY DSC S75	£517	see website	see website
SONY DSC-F707	£867	see website	see website
SONY P5	£479	see website	see website
SONY P50	£258	see website	see website
SONY CD200	£698	see website	see website
SONY CD300	£867	see website	see website
SONY FD200	see website	see website	see website

READERS AND ADAPTERS

FUJI ZIO USB Smartmedia reader/writer	£29
JENOPTIK USB Compact Flash reader	£24
JENOPTIK USB Smartmedia reader	£24
SANDISK Compact Flash USB reader	£27

SMART MEDIA

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FUJI 32MB	£15
FUJI 64MB	£30
FUJI 128MB	£60
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SANDISK 32MB	£17
SANDISK 64MB	£34
SANDISK 128MB	£68
TOSHIBA 64MB Smartmedia card	£33

COMPACT FLASH (TYPE I & II)

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FUJI 32MB	£20
FUJI 64MB	£32
FUJI 128MB	£58
IBM 340MB microdrive	£178
IBM 1GB microdrive	£288
SANDISK 16MB	£16
SANDISK 32MB	£22
SANDISK 64MB	£35
SANDISK 128MB	£60
SANDISK 256MB	£118

MULTIMEDIA CARDS

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SANDISK 32MB	£30
SANDISK 128MB	£58

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SANDISK 16MB	£24
SANDISK 32MB	£34
SANDISK 64MB	£58

MEMORY STICKS

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SONY 64MB	£54
SONY 128MB	£114

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